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FS2

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Installation and Operation Guide

Because it matters.

AJA® VIDEO SYSTEMS

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Caution!

This symbol, when used in the manual, indicates important safety and compliance information.

FS2
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Chapter 1: Introduction

Overview

Featuring a flexible, "anything-in, anything-out" architecture, the dual-processor FS2 Universal Video/Audio Frame Synchronizer and Format Converter simultaneously works with two independent channels of 10-bit broadcast quality video and two independent groups of 16-channel audio.

The FS2 can be used as two separate Frame Syncronizers/Format Converters, or the two channels can be combined in many powerful ways—for example, sidebar keying where both the video and background graphics can be upconverted and combined.

The FS2 supports analog and digital I/O, with full input and output crosspoint matrices, allowing any I/O port to be assigned to either processor. With support of all broadcast video formats, the FS2 makes matching up disparate video and audio systems simple—one converter box does it all.

Video Features

- Dual video format converters, each featuring SD/HD (up/down), SD-to-SD (aspect ratio), and HD-to-HD (720/1080 cross) conversions.
- Dual video processors supporting proc amp and color correction.
- Dual frame synchronizers.
- Dual video/key framestores downloadable from the local area network.
- User-specified custom format conversion settings with variable crop, size, aspect, and position parameters.
- Dual flexible keyers for video/key overlays or sidebar keying from the two video processors, the two internal video/key framestores, or internal matte generators.
- Closed captioning support, featuring true conversion between EIA 608 and 708 (SD and HD) CC formats.

- Active Format Description (AFD) support.
- Scan convert computer formats via a DVI-to-HDMI cable (future firmware release).
- Dual 3G/HD/SD SDI I/O with embedded audio.
- Dual 3G/HD/SD Optical Fiber I/O (optional).
- HDMI I/O supporting 3D HDMI output.
- Component/Composite analog HD/SD video I/O, 12-bit.
- Looping reference input with flexible genlock.

Available Video Formats

- The FS2 handles a wide variety of video formats. For a list, please see *Appendix A: Specifications*.

Audio Features

- Dual audio processors, each supporting 16-channel audio with full channel mapping.
- 16-channel AES/EBU, 8-channel balanced analog I/O.
- 16-channel embedded audio I/O with full mapping.
- AFV (audio follows video) support.
- Dolby E Decoder Card option. (Dolby E Encoder is a future option.)
- Miscellaneous AES/EBU Analog Audio cables.

Control and Other Features

- Built-in front panel control via scrolling alphanumeric and graphical menu.
- Front panel LED status indicators for at-a-glance system monitoring.
- Linux Operating system supporting full network compatibility, including Web-based remote control over 10/100/1000 Ethernet via an internal web server.
- Four isolated TTL GPI inputs and outputs for contact closure control.
- Two fully redundant power supplies standard.
- Optional remote control panel (future option).
- Five-year international warranty with unlimited technical support.

Typical Applications

The FS2 can be used in a very wide variety of video and audio signal conversion, adaptation, timing, and processing applications:

- Up/down/cross conversion between various SD and HD formats, including 1080p50/60.
- General purpose video frame synchronization.
- Analog-to-Digital and Digital-to-Analog audio/video conversion.
- Mux or Demux two separate HD signals from one 3G SDI signal.
- Convert 3G/HD/SD video over fiber to/from SDI (BNC).
- Use the built-in video processing amplifiers to adjust and/or color correct.
- Synchronize the timing of key and fill signals by putting both through the parallel FS2 video channels and adjusting their timing independently. Then key them using one of the two FS2 keyers or an external keyer.
- Use the HDMI input and a DVI-to-HDMI cable to scan-convert popular computer video formats to SD or HD, including full proc-amp functionality and aspect ratio adjustment (future firmware release).
- HD sidebar keying including using both SD video and SD sidebar graphics (analog or digital), upconverting both, and combining—all in the FS2.
- Dolby E Decoder Card option. (Dolby E Encoder is a future option.)

FS2 Control

FS2 operation can be monitored and changed in a number of ways. The following topics describe each method in detail:

- Front panel control
- Remote web browser via Ethernet
- SNMP monitoring (Simple Network Management Protocol) via Ethernet
- GPI Inputs and Outputs
- Optional remote control panel

Feature sets in each of the control methods vary, although the front panel and web browser interfaces offer many of the same features.

The front panel offers the most direct control, ideal for use in machine rooms or wherever quick changes and status checks must be made. *Chapter 2, Controls and Indicators* discusses the front and rear panel features in detail.

Front Panel Control

The front panel buttons, knobs, and alphanumeric display offer the most complete and direct means of system control. The buttons and knobs control menus in the display, allowing you to fully configure the system according to your purposes. You can control inputs, outputs, processing paths, keying, and much more. For details about how to operate the front panel, please see *Chapter 2: Controls and Indicators*.

Remote Web Browser Control

The FS2 internally contains an optimized web server that allows remote monitoring and parameter setting via an Ethernet 10/100/1000 network-attached computer running a web-browser.

From a network-connected computer you can communicate with one or more FS2 devices, even getting them to identify themselves via LEDs on the front and rear panel (front: *Identify*, rear: *ID*).

Networks can be closed local area networks, a straight computer-to-FS2 cable, or for greatest flexibility, exposed through a firewall to a broadband WAN.

Note: Firefox 4, Internet Explorer 9, and Safari 5 are the supported web browsers for FS2 control. Other browsers may work just as well, but AJA cannot guarantee operation.

The browser GUI operation and features are discussed in *Chapter 5*.

SNMP Interface

SNMP offers remote network monitoring of alarm conditions. SNMP support is described in *Chapter 6*.

GPI Inputs and Outputs

General Purpose Inputs and Outputs are available on the FS2 back panel to provide contact closure control. Using the inputs, an external contact closure activates a specified function on the FS2. Using the outputs, specific FS2 functions can produce a contact closure to activate any desired function on external equipment. The functions to be activated by an input or that can activate an output are set using the front panel and browser menus. Details of GPI operation are covered in two places:

- *Appendix B: GPI Connector Pinout* describes physical connections to the GPI outputs.
- *Chapter 4: Display Menus* and *Chapter 5: Browser Control* describe configuring functions to associate them with GPI inputs and outputs.

Optional Remote Control Panel

The FS2 can be controlled remotely via Ethernet using an optional remote control. For information about which remote panels are compatible with the FS2, consult AJA Support. See "Contacting Support" on page ii of this guide.

Optional Fiber I/O

The FS2 supports optional AJA Optical Fiber I/O modules as follows:

- Single Input, LC connector
- Single Input SC connector
- Single Output LC connector
- Single Output SC connector
- Dual Input LC connectors
- Dual Output LC connectors

FS2's Fiber I/O supports the 3G/HD/SD SDI protocol. Only AJA modules are supported; use of other manufacturers' modules is not supported and may void the warranty.

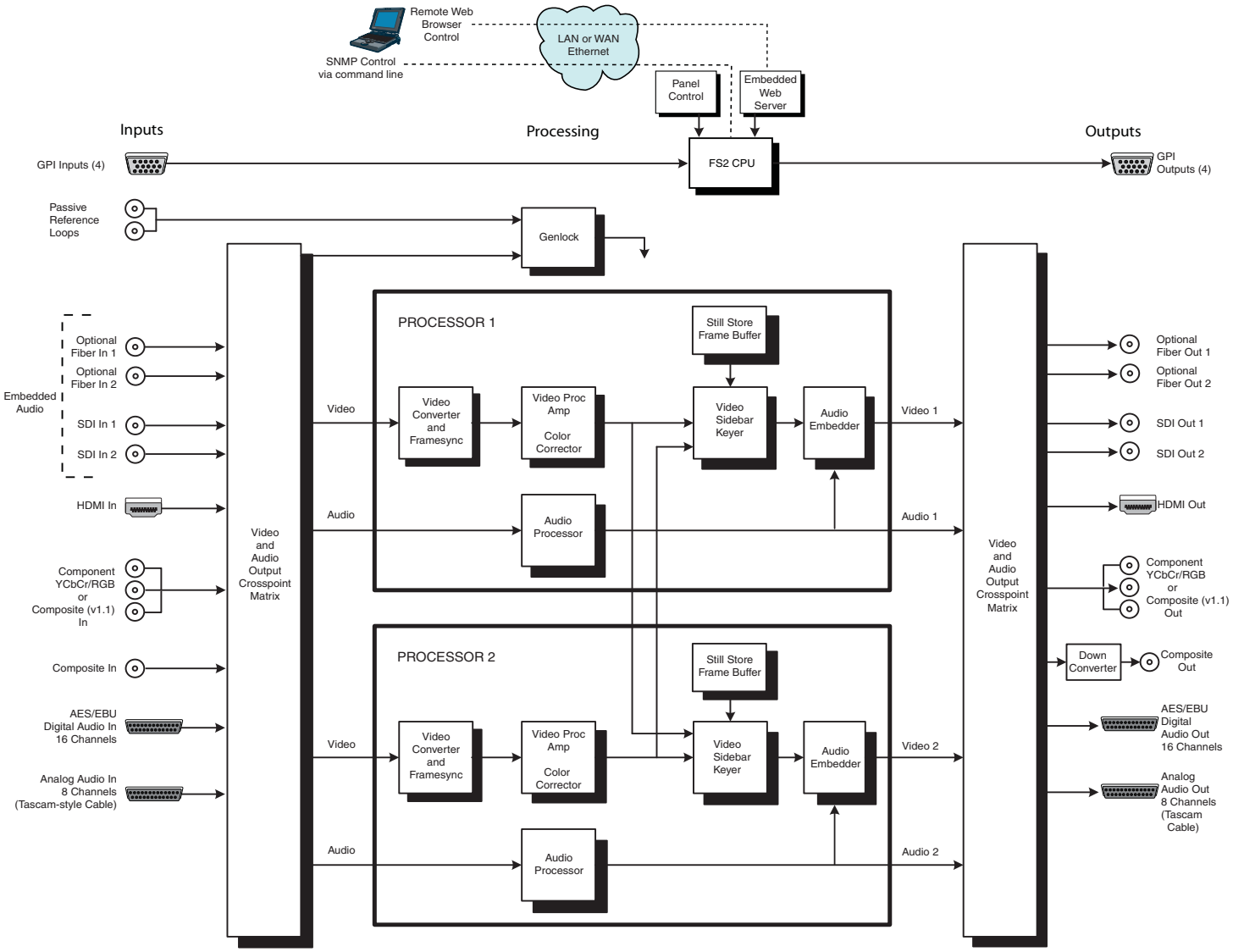
Optional Dolby E Decoder and Encoder Cards

The current FS2 software supports a Dolby E Decoder option in the right-hand option slot under the option top cover.

As a future option, the FS2 will accept up an optional Dolby E Encoder Card as well as the currently available Decoder card. You will be able to install a single encoder card and a single decoder card.

Technical Description

The FS2 features an incredibly flexible architecture offering two identical Video/Audio processing units, both of which can access any input or drive any output. For Video processing, each processor can also access the other video processor for sidebar keying or other functions that involve both video signals. For audio processing, each audio processor has access to any audio input for full channel mapping capability, and each audio processor outputs a 16-channel group that can be embedded in the SDI/HDMI/Fiber outputs and/or sent to the AES or Analog outputs.



FS2 Simplified Block Diagram

Optional Dolby® 5.1 audio encoding card (future option) and decoding card are available as hardware options installed by removing the top cover access slot.

Control of the FS2 can come from any of the following:

- Built-in front panel
- Plug-in remote control panel (future option)
- GPI input contact closures
- A remote computer running a web browser

Video Processors

The two Video Processors are identical and perform format conversion, frame synchronization, signal processing, and keying operations. Each video processor has access to any video input from the Input Crosspoint Matrix.

Up, down, or cross conversion is done with very high quality scalers. De-interlacing is performed with high quality motion-adaptive processing including diagonal filters. The Processing Amplifier and Color Correctors support video signal adjustment with standard Proc Amp controls and RGB-style color correction.

The keyers in each video processor can operate in several modes:

- Add a background for HD sidebar upconversion. The background can be Black, a user-configurable matte, video from the other video processor (which itself can be upconverted), or a video still (future firmware release) from the internal stillstore.
- Add a video/key graphic from the internal graphic stillstore (future firmware release)
- Combine the two video processors in various ways, such as creating a live "over-the-shoulder" key.

The Video Processors can also be used as a still store and output full screen stills or test patterns.

3G Support

The FS2 supports several types of 3G video (and associated embedded audio):

- 1080p59.94/1080p50 in both SMPTE level A or level B
- Muxed 3G Video: two separate 720p/1080i video signals muxed into one 3G level B signal

In the case of "Dual Stream Video, " the FS2 input processing can demux the two signals and send them (each with their associated 16-channel audio) to the two processors. For output, the FS2 can mux together the two video signals (and their audio) from the two processors into a Dual Stream 3G video output.

Control of 3G functionality can be set to automatic (using ANC data format ID), or with full manual control via the user interface.

The FS2 also supports “Dual Link” video in the form of 1080p59.94/1080p50 video on two 1.5G SDI cables. This form of Dual Link is supported at both FS2 inputs and outputs.

Audio Processors

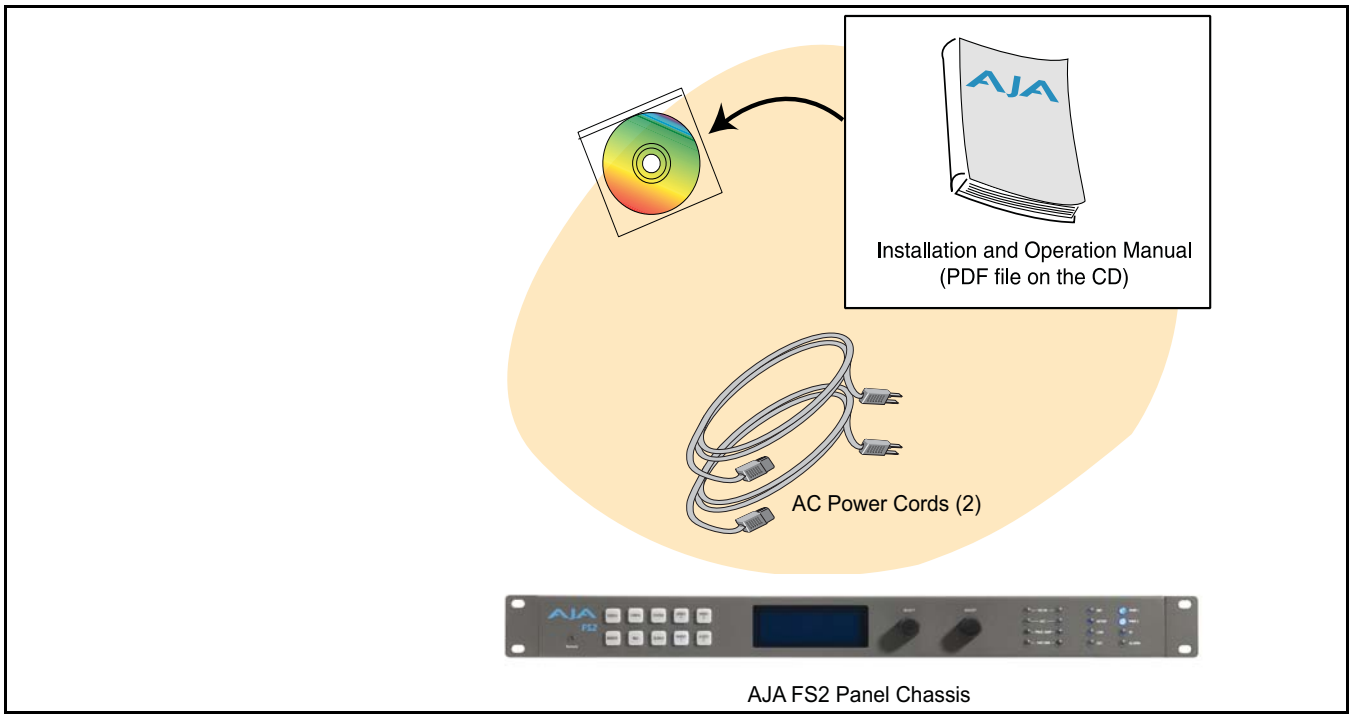
The two audio processors accept analog, digital, or embedded audio inputs as chosen by the input crosspoint matrix. Inputs can be selected from Embedded (SDI, Fiber, or HDMI), AES, or Balanced Analog and full channel mapping supports any mixture of the inputs. Each audio processor processes and outputs 16 channels. The output of each processor can be embedded in its respective Video processor output (SDI, Fiber, or HDMI), or sent to the AES or Balanced outputs. For 3G and Dual link Inputs, the Audio processors can have access to all 32 channels.

What's In The Box?

When you unpack your AJA FS2 chassis, you'll find the following components:

- AJA FS2 Chassis
- AC Power cords (2)
- The manual you're reading (on CD)
- Optional: *Late-breaking News* or *Read-Me-First* notices (AJA may include additional bulletins related to your product and software)

Please save all packaging for shipping the FS2, should you need to do so.



FS2 Shipping Box Contents

In This Manual

Chapter 1: Introduction provides an overview and a list of box contents.

Chapter 2: Controls, Indicators, and Connections describes controls, indicators, and connections.

Chapter 3: Installation and Configuration provides complete instructions for installing and configuring the FS2.

Chapter 4: Display Menus explains how to use the FS2 controls and display menus.

Chapter 5: Browser Control explains how to use the FS2 remotely via a web browser on a network-attached computer.

Chapter 6: SNMP discusses FS2 support of SNMP.

Appendix A: Specifications presents a list of technical specifications for the product.

Appendix B: GPI & RS422 Connector Pinouts presents GPI and RS422 Machine Control connector pinouts.

Appendix C: Analog Audio Connector Pinout shows a Tascam connector pinout.

Appendix D: Safety & Compliance provides regulatory compliance statements, advisories and warnings.

Appendix E: Glossary contains a glossary of terms that apply to the product.

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Chapter 2: Controls, Indicators, and Connections

Control and Indicator Descriptions

The controls, indicators, and connectors illustrated and described in this chapter allow you to connect, operate, and monitor the FS2 system and to troubleshoot problems if you encounter them. Becoming familiar with the FS2 front and rear panels also simplifies system installation, setup, and operation.

Additional control, indicator, and connector details follow in these chapters:

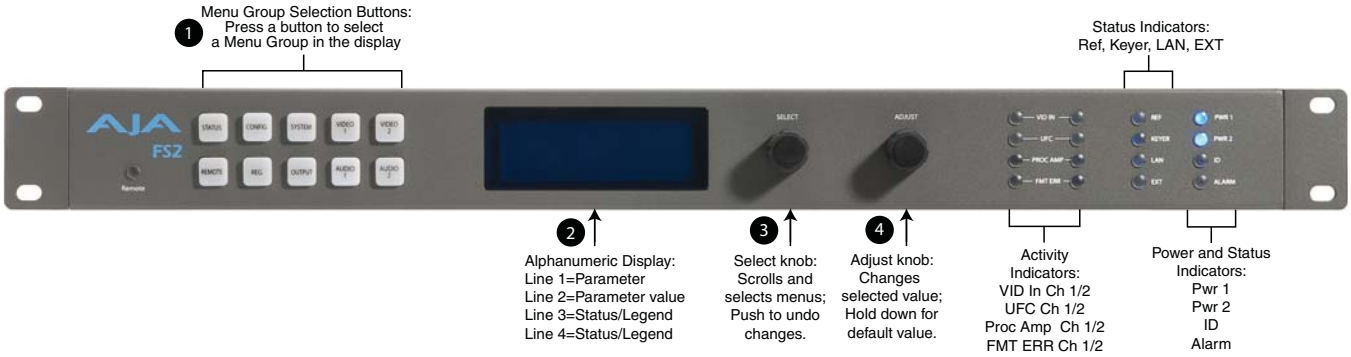
- Full installation instructions are provided in *Chapter 3*.
- Detailed menu descriptions are presented in *Chapter 4*.
- The web browser user interface is described in *Chapter 5*.

Note: The AJA FS2 should be plugged into 3-wire 100-240 VAC 50/60 Hz power (autosensing) before you make connections to other equipment. The AC cords provide a path to ground for accidental static discharge to protect system equipment. The FS2 has two fully independent and redundant power supplies and will operate with one or both AC power cords plugged into the unit. However, fault-tolerance exists only if both power supplies are connected and plugged into separate branch circuits. Then if power is lost on a branch or one of the supplies, the FS2 will continue to operate on the remaining circuit and power supply.

Warning: *To meet safety regulations for leakage current and to ensure redundancy in the event that a branch circuit breaker shuts off a branch, connect the FS2 dual power supplies to separate branch circuits.*

Front Panel Description

The following topics present an overview of front panel controls and indicators to help you get familiar with operating the FS2. For details about using the controls with particular menus, please see *Chapter 4: Menus*.


1 Menu Group Selection Buttons: Press a button to select a Menu Group in the display
Status Indicators: Ref, Keyer, LAN, EXT
2 Alphanumeric Display: Line 1=Parameter Line 2=Parameter value Line 3=Status/Legend Line 4=Status/Legend
3 Select knob: Scrolls and selects menus; Push to undo changes.
4 Adjust knob: Changes selected value; Hold down for default value.
Activity Indicators: VID In Ch 1/2 UFC Ch 1/2 Proc Amp Ch 1/2 FMT ERR Ch 1/2
Power and Status Indicators: Pwr 1 Pwr 2 ID Alarm

AJA FS2 Front Panel Controls and Indicators

Alphanumeric Display

The FS2's control system is designed to be quick and easy to use. The four-line alphanumeric display shows menus that are numbered and grouped by function. The menu groups are easily accessed using pushbuttons which correspond one-to-one with the groups (one button per menu group). The menu lines, which are 23 characters wide, display the following information:

- **First line**—parameter number and name.
- **Second line**—the editable value set for a parameter.
- **Third line and fourth lines**—current status, labels, or prompts.

When you edit a parameter containing multiple values, such as the IP address, the value currently being edited blinks.

Operational Summary

The 10 front panel pushbuttons allow you to select display menu groups. The two knobs allow you to change menus and set parameters within the menu groups. These functions can be summarized as follows:

- Select a menu group: Press one of the ten pushbuttons.
- Scroll through menus in a group: Turn *SELECT*.
- Edit a menu parameter: Stop *SELECT* on the menu.
- Change a parameter value: Once the parameter is selected with *SELECT*, turn *ADJUST* to set the value. Changes apply in a few seconds.
- To edit a multiple part parameter, such as the IP address, push the *ADJUST* knob momentarily (the value blinks). To save the whole parameter after editing, push *ADJUST* momentarily again.
- Coarse adjust a value: Hold down the menu group button (the button turns blue) and turn *ADJUST*.
- Undo a change (restore previous setting): Push *SELECT* momentarily.
- Reset to factory default: Hold down *ADJUST* for 4 seconds.

Pushbuttons

These are the general rules of Menu Group button operation:

- Press one of the ten Menu Group buttons to access the associated menu group. The *SELECT* and *ADJUST* knobs control the display menus.
- The selected Menu Group button lights and the other buttons turn off.
- Each menu group returns to the last menu changed when you select the button. After a reboot, each group displays its first menu.
- Hold down a button (turns blue) to make coarse adjustments using the *Adjust* knob. Release the button to make fine adjustments.

The following text briefly lists the functions accessed by each pushbutton:

***STATUS*:** Displays the Status Menu Group, which shows current machine status and error conditions:

- Video 1, Video 2, and Caption status
- Reference and GenLock status
- Output Status
- Power and Temperature status
- System Name display
- Alarms

***REMOTE*:** Displays the Remote Menu Group, which lets you select how to control the FS2:

- Control by local front panel, remote devices, or local and remote
- GPI input and output behavior

***CONFIG*:** Displays the Config Menu Group, which lets you configure the FS2 for your environment:

- System Name setting
- IP and SNMP settings, MAC address
- Alarm control
- Hidden Menus and Display intensity (brightness)
- System serial number and software version
- System reboot

***PRESET*:** Displays the Reg Menu Group, which accesses the memory registers:

- Store and Recall Presets
- Factory Preset (defaults)

***SYSTEM*:** Displays the System Menu Group, which lets you change or enable FS2 video and audio input and system functions:

- Video input format settings, including 3G setup
- Audio input format and sample rate conversion settings
- Genlock reference source selection
- Frame rate selection and NTSC standard (North America/Japan)
- Input downconversion setting (HD to SD)
- HDMI RGB Range

***OUTPUT*:** Displays the Output Menu Group, which selects output sources:

- Composite downconversion
- Video output selections
- Audio output selections
- 3 G output configuration
- HDMI video and audio configuration

***VIDEO 1 and 2*:** Displays the Menu Groups that access Video Processor video input, format, and conversion selections and adjustments (separate buttons access Video Processor 1 and Video Processor 2):

- Video Processor Input Source and Background Fill selections
- Video Processor Output Format and Mode
- Loss of Input
- Video Processor Up, Down, Aspect, Edge, and Custom Conversions
- Video Processor Matte Adjustments
- Video Processor H and V timing
- Video Processor Proc Amp, Color Corrector, and Legalizer
- AFD embedding, input scan format (i or p), and caption translation
- Video Processor Test Patterns
- Freeze Output

***AUDIO 1 and 2*:** Displays the Audio 1 Menu Group, which allows you to set Audio Processor 1 selections and adjustments:

- Audio Processor input selection, output embedding, and Audio Follow Video (AFV)
- Audio Signal Generator Selection
- Audio1 channel and stereo mapping
- Audio1 level, phase, and delay adjustments

Control Knobs

These are the general rules of *SELECT* and *ADJUST* knob operation:

***SELECT*:** Turning the *SELECT* knob performs these actions:

- Turn *SELECT* in either direction to scroll through the menus.
- Stop on a menu to enter that menu for editing.
- Turn *SELECT* within a menu to scroll through multiple parameters.
- Pause on a parameter to select it for editing. For multiple fields in a parameter, use *SELECT* to move through the fields (after pressing *Adjust* to enter field editing mode).
- Push *SELECT* momentarily to undo and restore the previous setting.

***ADJUST*:** Turning the *ADJUST* knob performs these actions:

- Turn *ADJUST* to change the values of a selected parameter.
- In most cases, leaving a value in place for a moment sets that value.
- To perform special actions, such as recalling a register, push the knob to confirm the displayed value. Display line 4 indicates such special actions.
- Some parameters having multiple fields, such as *IP Address* require you to push the *ADJUST* knob to select a field, and push again to save changes.
- Hold down the knob to reset a value to the factory default; for multiple field values, *all fields are reset to the default*.

The following table summarizes *SELECT* and *ADJUST* knob operation.

Function	Knob Action
Scroll through menus. Scroll through parameters in a multiparameter menu. Scroll through numerals or letters in a parameter.	Turn *SELECT* backwards or forward.
Enter edit mode for a menu. Enter edit mode for a parameter. Enter edit mode for values, numerals, or letters. Advance to the next value, numeral, or character to edit.	Turn and stop *SELECT* on the item to edit. (For some multiple parameter menus, push *ADJUST* so that the selected parameter blinks.)
Increment/decrement a value.	Turn *ADJUST*.
Coarse adjust a value.	Hold down button and turn *ADJUST*.
Reset a value to the factory default value. Set a number to the default value (typically zero). Set a letter to a default value (typically space).	Hold down *ADJUST*.
Take (commit) a change to an edited parameter.	Automatic after a few seconds for most parameters. For multiple field parameters, push *ADJUST* momentarily to save.
Abandon (undo) a change before committing.	Push *SELECT* momentarily.
Take (commit) a special action, such as a preset recall.	Push *ADJUST* momentarily.

Note: Menus and parameters are described in detail in *Chapter 4*.

LED Indicators

Indicators on the front panel are multi-state LEDs that light when a condition is present. They are conveniently arranged in groups to show specific subjects. For example, indicators for the two video channels are aligned in two columns with 1 and 2 labeling the tops of the columns.

The indicators and the conditions that cause them to light are as follows:

REMOTE: A multicolor LED that indicates the current control mode:

- Green = Local Only (front panel control only)
- Red = Remote Only (remote browser or panel control only)
- Amber = Local + Remote (front panel and remote control both enabled)

VID IN 1/2 (blue): An active video input signal is detected for Channel 1 or 2.

UFC 1/2 (blue): The Universal Format Converter has been changed from the default setting for Channel 1 or 2.

PROC AMP 1/2 (blue): The Proc Amp has been changed from the default setting for Channel 1 or Channel 2 (it's no longer at unity).

FMT ERR 1/2 (red): The selected input and output formats are incompatible for Channel 1 or Channel 2.

REF (blue): The REF connector has an external reference video source applied.

KEYER (blue): Reserved for future use.

LAN (blue): The FS2 is connected to an operational local area network. This indicator lights momentarily when web browser selections are changed.

EXT (blue flashing): Flashes when a remote control source (remote panel or GPI) has initiated a change in the system.

PWR 1/2 (blue): Power Supply 1 or 2 is operational and receiving power. Both *PWR 1 and PWR 2* LEDs must be lit to indicate redundant power is available.

ID (blue): Lights when you right-click on an FS2 system name in the web interface *Network* list. This action helps identify which FS2 you're controlling when multiple FS2 units are operated from a single computer. The *ID* LEDs on the front and rear panels perform the exact same function. No matter which side of a rack you're facing, you'll be able to see one of the LEDs.

ALARM (red): An alarm event has been detected. Press the *STATUS* button for information. The Alarm LED may light because of a disconnected or failed power supply, other hardware failure, video incompatibilities, or genlock loss. (Any of these conditions may be suppressed using the *Alarm Suppress* parameters, *CONFIG 5*, *6.1*, *6.2*, and *7*.)

Incompatibility Alarms

The FS2 produces signal incompatibility alarms for a number of reasons. The following tables explain how to interpret the alarms.

Incompatible Video Formats

The table below shows conversions that the FS2 cannot do and which will cause video format alarms to be generated. For information about the available formats and general compatibility rules, see *Appendix A Specifications*.

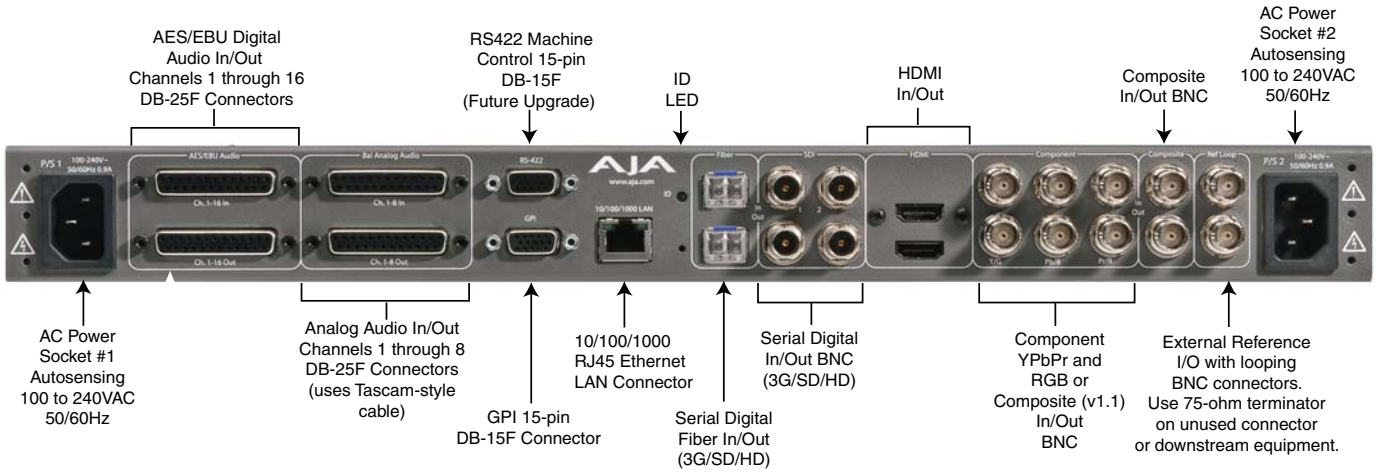
Input	Incompatible Output Formats
525i59.94	1080p(&pSF)23.98
1080i59.94	1080p(&pSF)23.98
720p59.94	1080p(&pSF)23.98
1080p29.97	1080p(&pSF)23.98
1080pSF29.97	1080p(&pSF)23.98
625i60	1080p(&pSF)24
1080i60	1080p(&pSF)24
720p60	1080p(&pSF)24
1080p30	1080p(&pSF)24

Example Reference and Video Incompatibility Alarms

Video incompatibilities that the FS2 may detect include the following:

Video Incompatibility Detected	Alarm Status screen will show
Genlock Source is set to "Reference", but no Reference signal is detected.	VID1 SDI 1 525i59.94 BKGD Matte GEN Reference No Input OUT 1080i59.94
Genlock Source signal format is not compatible with selected Input Format.	VID1 SDI 1 Incompat BKGD Matte GEN Reference Incompat OUT 1080i59.94
Genlock Source signal format is not compatible with selected Output Format.	VID1 SDI 1 525i59.94 BKGD Matte GEN Reference Incompat OUT Incompat
Input signal is not compatible with selected Output Format.	VID1 SDI 1 Incompat BKGD Matte GEN Reference 1080i59.94 OUT Incompat

Rear Panel Description


AES/EBU Digital Audio In/Out Channels 1 through 16 DB-25F Connectors
RS422 Machine Control 15-pin DB-15F (Future Upgrade)
ID LED
HDMI In/Out
Composite In/Out BNC
AC Power Socket #2 Autosensing 100 to 240VAC 50/60Hz
AC Power Socket #1 Autosensing 100 to 240VAC 50/60Hz
Analog Audio In/Out Channels 1 through 8 DB-25F Connectors (uses Tascam-style cable)
GPI 15-pin DB-15F Connector
10/100/1000 RJ45 Ethernet LAN Connector
Serial Digital Fiber In/Out (3G/SD/HD)
Serial Digital In/Out BNC (3G/SD/HD)
Component YPbPr and RGB or Composite (v1.1) In/Out BNC
External Reference I/O with looping BNC connectors. Use 75-ohm terminator on unused connector or downstream equipment.

Connectors

The rear panel connectors are summarized below and described in detail in the next section:

P/S 1* and *P/S 2: AC power connectors.

AES/EBU Audio: Digital audio input/output DB-25 connectors (16 channels).

***Analog Audio Ch.1-8 In/Out*:** Analog audio in/out via DB-25 (8 channels).

RS-422: DB-15 connector reserved for future use.

GPI: General purpose interface DB-15 connector providing dual isolated TTL I/O.

10/100/1000 LAN: RJ45 Ethernet local area network connector.

SDI Fiber In/Out (optional): Digital video with embedded audio. Optional fiber modules provide 1 or 2 fiber inputs and 1 or 2 fiber outputs.

SDI In/Out: Digital video with embedded audio, 2 BNC inputs/outputs.

HDMI In/Out: HDMI digital audio/video input/output.

Component In/Out YPbPr/RGB Video: Component video (or composite with v 1.1 firmware) input/output BNCs.

Composite In/Out: NTSC/PAL video input/output.

Ref Loop: 2 BNCs, passive loop (must be terminated if not looped).

Connector Descriptions

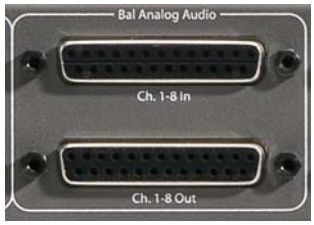
AC Power Connectors

Two 3-pin grounded connectors provide AC power to the two independent power supplies. The supplies are autosensing for 100–240 VAC, 50/60 Hz. Only one connection is required for operation, but both connectors must be plugged into AC power for redundant power protection.

AES/EBU Digital Audio In and Out

16-Channel, 24-bit AES Input and Output on separate DB-25 connectors (Tascam pinout, see *Appendix C)*.

Balanced Analog Audio In and Out



8 channel Balanced Analog Audio Input and Output on separate DB-25 connectors (Tascam pinout, see *Appendix C*). Audio A/D and D/A converters are 24 bit.

RS-422 Port

This DB-15 connector is reserved for future use.

GPI Inputs and Outputs

The GPI DB-15 connector provides connection to external equipment or circuits via an isolated TTL-compatible interface. Four GPI inputs and four outputs are available. *Appendix B* contains a pinout and specifications for the GPI connector.

Using the *REMOTE* menu group, you can program the actions of the GPI inputs and outputs individually. Contact closures on the inputs can trigger a wide variety of FS2 functions. Alarms or loss of video can trigger the GPI outputs.

LAN

An RJ45 connector provides an Ethernet 10/100/1000 port for connection directly to a computer or to a LAN through an Ethernet hub or switch.

SDI In and Out

Two SDI Input and two SDI Output BNCs.
10 bit 3G/HD/SD SDI is supported.

Optical Fiber In and Out

Two optional Optical Fiber SFP modules support single- or dual-channel Fiber Input and/or Output. 3G/HD/SD SDI protocol is supported. Only AJA Optical Fiber SFP modules are supported—use of other manufacturer's modules is not supported and may void warranty.

Component/Composite Analog Video In and Out

Component Analog Video is supported on 3x BNCs for Input and Output. Video A/D and D/A converters are 12-bit and support both SD and HD. YPbPr format is supported or the outputs can be switched to RGB. Additionally, with v 1.1 firmware composite analog video is supported.

HDMI In and Out

HDMI In and Out is supported on HDMI connectors. Standard SD and HD video formats are supported, including support for 8 channel embedded audio. A future release supporting standard computer DVI video formats (via a DVI to HDMI cable) is planned. HDCP (copy protected) HDMI video is not supported.

Composite NTSC/PAL

Composite NTSC or PAL standard definition Input and Output. Composite Video A/D and D/A converters are 12-bit.

Reference Video (looping)

The Reference Loop BNCs accept an Output timing reference signal. The reference can be SD Blackburst, SD composite sync, or HD tri-level sync. Examples of permissible reference video input signals:

- 525 Color Black
- 625 Color Black
- 1080i Tri-level Sync
- 720p Tri-level Sync

The 2 BNCs are a passive loop: one BNC is for the Input, and the remaining BNC can be connected to another piece of equipment in the reference chain or terminated.

Note: For proper operation the input Reference signal must be stable and properly terminated using a 75-ohm terminator on either the unused loop connector or the last piece of downstream equipment to which the Ref Video is connected.

About Inputs and Outputs

To operate the FS2, first select an Output Video Format (In the Video 1 or 2 menu); then select an Input port. The FS2 will automatically determine the selected input video format and convert it (if necessary) to the selected Output Video Format.

Any Video or Audio Input can be selected by either Processor 1 or Processor 2, and either processor's output can be sent to any output port.

The composite Video Output has a dedicated Downconverter so it can always display an output even if it is selected to output an AV Processor that is set to output HD.

Chapter 3: Installation & Configuration

Installation Overview

The installation and set up of an FS2 is very simple. Plug both AC supply cords into AC mains power (separate branch circuits for redundancy), connect the LAN connector to a LAN, WAN or local computer with a web-browser, and then connect source and destination video and audio equipment.

Hazard Warning!

High Voltage. This situation or condition can cause injury due to electric shock.

Warning!

Do not open the chassis. There are no user-serviceable parts inside. Opening the chassis will void the warranty unless performed by an AJA service center or licensed facility.

Warning!

Disconnect the external AC power supply line cord(s) from the mains power before moving the unit.

Warning!

Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

Warning!

Since the Mains plug is used as the disconnection for the device, it must remain readily accessible and operable.

Warning!

Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the device.

Warning!

To meet safety regulations for leakage current, connect the FS2 dual power supplies to separate branch circuits.

Warning!

Refer all servicing to qualified service personnel. Servicing is required when the device has been damaged in any wav, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the device, the device has been exposed to rain or moisture, does not operate normally, or has been dropped.

Installation Summary

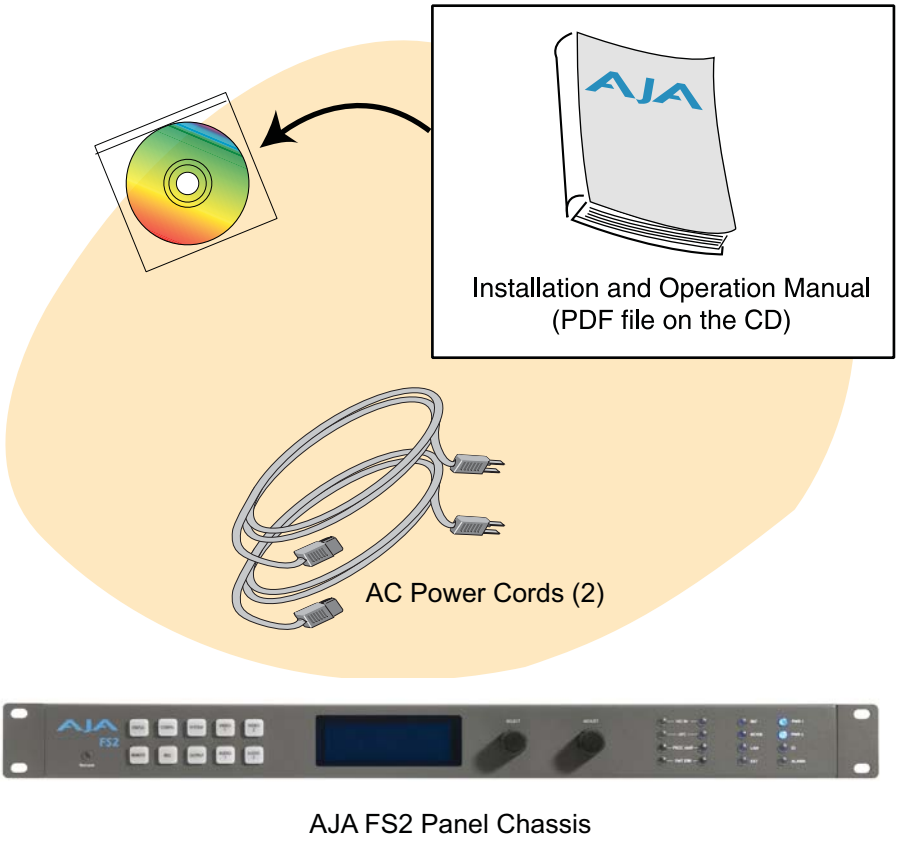
All the steps of installation and configuration are documented in this chapter and are summarized as follows:

1. Unpack the shipping box, removing the FS2 and two power cords.
2. Install any physical options, such as fiber optic I/O modules or Dolby I/O cards.
3. Mount the physical chassis as desired: front rack, rear rack, or deskmount. If you are mounting multiple FS2 units, try to place them visually in the same area so you can use an attached computer to turn on and see the *ID* LED of the FS2 you're communicating with. For physical installation details, see "FS2 Chassis Installation" on page 27.
4. Connect the two FS2 power cords to mains AC. For redundancy, use both power supplies and connect them to separate branch circuits so that the FS2 will continue to operate even if a circuit breaker opens on one branch.
5. If you plan to use remote control, connect your computer to the FS2 directly using an Ethernet cable, or connect both the computer and the FS2 to a local area network through an appropriate hub or router. Also set the FS2 IP address in the menus, and then use a computer to test (ping) the FS2 over the network connection to verify communication. For details, see "Network Connection" on page 29.
6. Install a web browser on the computer, if not already present, for accessing the FS2 web pages. You can access the pages simply by entering the FS2 IP address in the browser address field. See "Web Browser Control" on page 32 for details.
7. Connect the FS2 to system audio and video sources, including VTR(s), monitors, DVD players, video switchers, and audio mixers. For details, see "System Cabling" on page 34.
8. Test the FS2 with all of your devices to verify everything is working.

Unpacking

Shipping Box Contents

An FS2 chassis is shipped with two AC power cords, a user manual CD, and any late-breaking news bulletins (if applicable). Chassis rackmount brackets are provided as part of the chassis with screws.



AJA FS2 Panel Chassis

Shipping Box Contents

As you unpack the shipping box, carefully examine the contents. Ensure you received everything and that nothing was damaged during shipment. If you find any damage, immediately notify the shipping service and supply them with a complete description of the damage. AJA will repair or replace damaged items.

If you find shipping damage, contact your AJA dealer or distributor for details on how to have your FS2 repaired or replaced.

Note: Save packing materials and the shipping box. If your FS2 ever requires service or you move your system, use the packaging materials and box for safe shipment.

Installing Optional Fiber Optic I/O Modules

The optional AJA Fiber Optic I/O modules are purchased separately from the FS2. These AJA fiber modules work with the FS2:

- Single-channel LC connector modules
- Single-channel SC connector modules
- Dual-channel LC connector modules

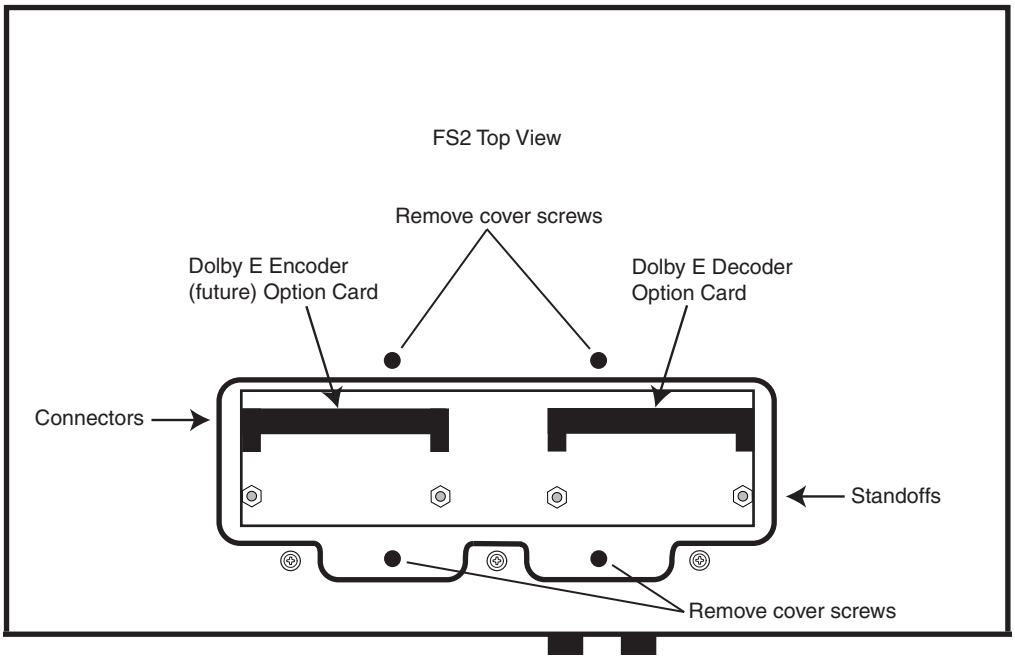
Caution: *ONLY AJA fiber optic I/O option modules may be inserted into the FS2 Fiber slots. DO NOT USE fiber modules from other manufacturers; they will damage the FS2 connectors and circuits.*

Install the optional fiber I/O modules by inserting them into the rectangular holes marked *Fiber* on the back panel with the electrical connectors facing downward. Press gently but firmly until the modules seat in the inside connectors. For additional installation and operation details, see the instructions provided with the fiber modules.

Installing Optional Cards

Optional cards install in the two option slots on the FS2 circuit board. Access them by removing the small top cover as explained and illustrated below:

1. Disconnect AC power.
2. Remove the four screws securing the small cover on top of the FS2.
3. Insert the cards into the card-edge connectors on the FS2 circuit board.
4. Insert the two supplied screws (with washers) through the holes in the cards into the mounting standoffs. Tighten the screws, being careful not to overtighten and damage the cards.
5. Replace the small cover and tighten down the screws holding it in place.



Option Card Installation

Dolby Decoder Installation

The v1.1 software release supports Dolby Decoder cards in the right-hand option card slot. Disconnect AC power, remove the top panel option cover, and install the card in the right-hand slot as described above.

After installation, access the front panel or browser menus, and set these parameters as you prefer for the Dolby option:

- *System* parameters 15, 22.2, 22.3, and 22.4
- *Audio 1* and *Audio 2* parameters 1.0–1.24

FS2 Chassis Installation

The following information will help you install the FS2 chassis correctly.

Physical Requirements for Mounting the Chassis

You can mount the FS2 chassis in two ways:

- Rackmounting—attach the FS2 (rear or front mounted) to a standard 19-inch wide equipment rack. The chassis occupies only one vertical rack unit.
- Desktop—lay it on a horizontal flat surface.

Chassis Dimensions

When planning the equipment location, consider the chassis dimensions:

- Height—1 rack unit, 1.75 inches (4.5 cm)
- Depth—16 inches (40.65 cm)
- Width—17.5 inches (44.45cm)
- Weight—7.85 pounds, 3.56 kilograms

Cabling and Cooling Requirements

Observe these precautions when placing your FS2:

- Plan adequate space for cable routing from the back of the chassis. Ensure that cable connectors are not stressed and cables are not bent or crimped.
- When rack mounting or stacking multiple FS2 chassis, ensure adequate airspace for cooling around the FS2 units. Note the location of cooling vents on all equipment next to the FS2 and ensure none are obstructed.

Note: FS2 units can be stacked vertically without limit as long as there is an adequate supply of cool air around the FS2 vents.

Power Requirements

The FS2 requires the following input voltage and power.

- Input Voltage—Chassis: autosensing 100VAC to 240VAC, 50/60Hz, fully redundant with both power supplies diode isolated.
- Power Consumption—55 Watts.

Warning: *Read the following warnings before applying power to the FS2.*

Hazard Warning!

High Voltage. This situation or condition can cause injury due to electric shock.

Warning!

Do not open the chassis. There are no user-serviceable parts inside. Opening the chassis will void the warranty unless performed by an AJA service center or licensed facility.

Warning!

Disconnect the external AC power supply line cord(s) from the mains power before moving the unit.

Warning!

Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

Warning!

Since the Mains plug is used as the disconnection for the device, it must remain readily accessible and operable.

Warning!

Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the device.

Warning!

To meet safety regulations for leakage current, connect the FS2 dual power supplies to separate branch circuits.

Warning!

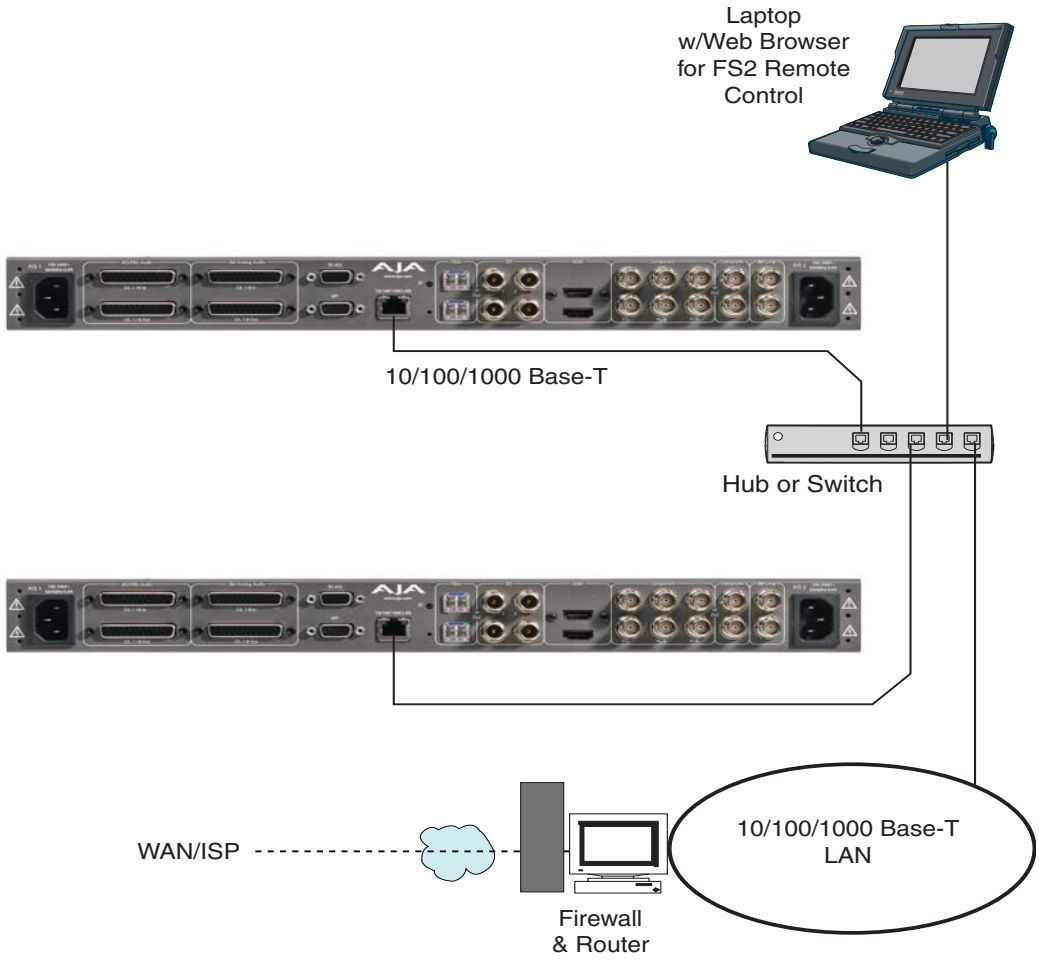
Refer all servicing to qualified service personnel. Servicing is required when the device has been damaged in any wav, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the device, the device has been exposed to rain or moisture, does not operate normally, or has been dropped.

Network Connection

You can network the FS2 directly to a laptop or other desktop computer using a single Ethernet cable (straight or cross-over), or connect it to a local area network (LAN). In either case, the FS2 connects via its 10/100/1000 Base-TX Ethernet connector. A LAN is a shared network that includes other Ethernet devices all attached via a hub or digital switch. LANs may be divided into zones separated by software or hardware routers. Routers may also be used to connect the LAN to an outside wide area network (WAN) such as the internet.

Devices on a LAN have IP addresses which may be fixed and permanent or dynamically assigned by the network (DHCP). When attaching the FS2 to a LAN, talk to your network administrator to find out how they want it connected (static IP or DHCP). Your IT department will be able to supply the information you need to install the FS2 on a LAN.

The following illustration shows a network connection example; your installation may differ.



FS2 Network Example, Two FS2s on a LAN, with Laptop for Remote Control

Network Address

The following topics discuss two ways to set up the FS2 to communicate over a TCP/IP network connection: via DHCP or via a static IP address.

Networking Using DHCP or Default Static IP

The FS2 factory default configuration automatically looks for a DHCP server to issue an IP address. If your network includes a DHCP server, plug the FS2 into the network and connect with the FS2 as follows:

1. Press the *CONFIG* button.
2. Turn the *SELECT* knob to navigate to config parameter *2.2*. Note on a piece of paper the DHCP-supplied IP address shown.
3. With your laptop or desktop computer connected to the same LAN as the FS2 and DHCP enabled, type the IP address you noted into the browser address field and press *Enter*. You should now see the FS2's browser *Status* screen.

If the FS2 cannot get an address from the network DHCP server, the FS2 will automatically use a preset factory static IP address of 192.168.0.2. You can access the FS2 using the default static address as follows:

1. Set your computer's IP address to whatever address you prefer.
2. Set the computer's Subnet mask to 255.255.255.0 (most PCs default to the proper netmask when the address is set).
3. Set the gateway address, if used, to match the FS2 default: 192.168.0.1. Alternatively, change the FS2 gateway address to match your gateway: Press *CONFIG*, turn *SELECT* to *2.4 Default Gateway*, push and then turn *ADJUST* to change the first group of digits, turn *SELECT* to advance to the next set of digits and set with *ADJUST* again, and so on. Push *ADJUST* to save when done.
4. Run a browser on the computer and type "192.168.0.2" (the factory static IP address). You should now see the FS2's browser status screen.

When you can access the FS2 screens, turn to "Chapter 5: Browser Remote Control" on page 99 for details about configuring the FS2 using a browser.

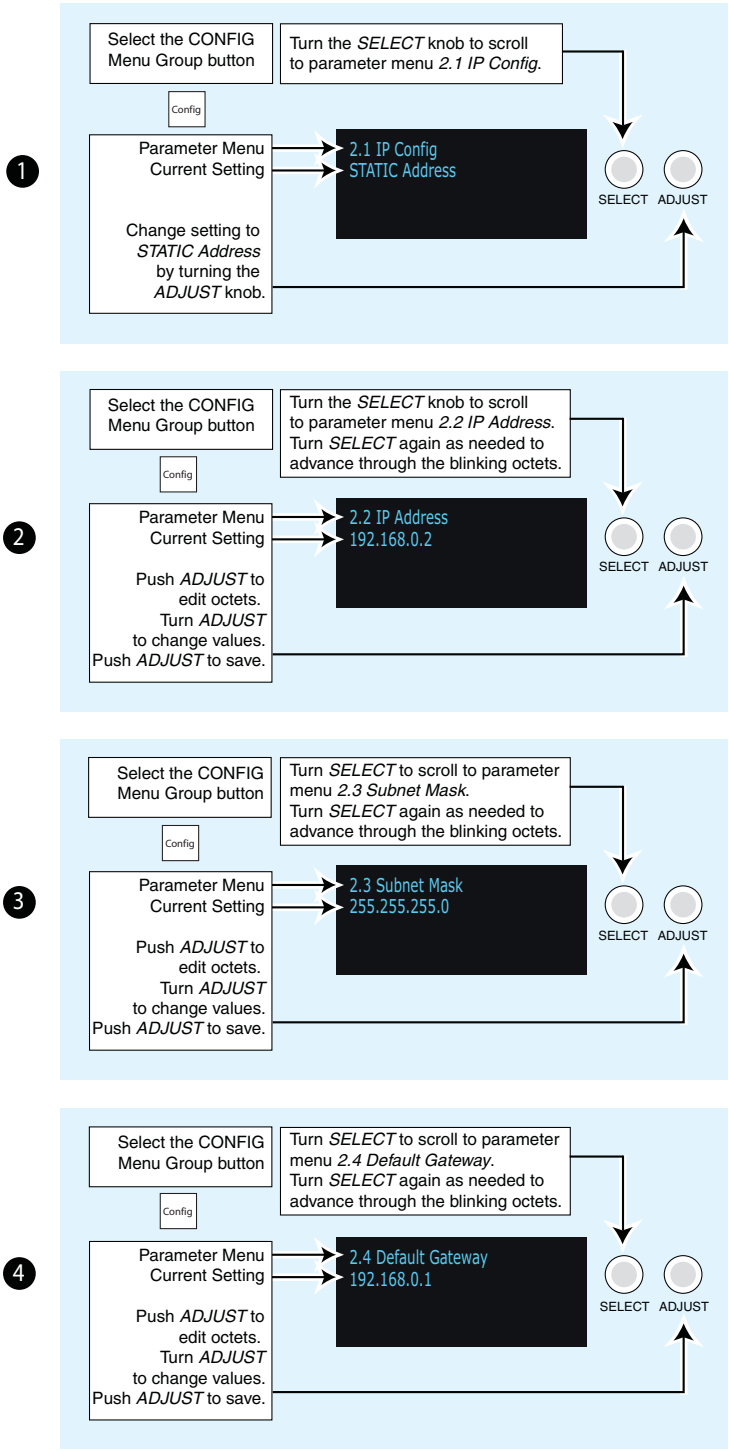
Networking the FS2 Using Your Own Static IP

If you don't want to use DHCP or the default static IP address, you can set your own static IP address:

1. Select the *CONFIG* button and use the *SELECT* knob to navigate to parameter *2.1 IP CONFIG*. Use the *ADJUST* knob to select *Static*.
2. Turn *SELECT* to navigate to parameter *2.2 IP ADDRESS*. The display shows the default static IP address: 192.168.0.2.
3. Change the address as follows. Push the *ADJUST* knob momentarily so that the first octet (set of numbers) blinks, and then turn *ADJUST* to change the numbers. Turn *SELECT* to advance to the next set of numbers, and turn *ADJUST* to set these numbers. Continue using *SELECT* and *ADJUST* to set the full address. When finished, push *ADJUST* momentarily to save the address.
4. Turn *SELECT* to advance to *2.3 Subnet Mask*. Use the *SELECT* and *ADJUST* knobs as in the previous step to set the desired subnet mask.
5. Turn *SELECT* to advance to *2.4 Default Gateway*. Use the *SELECT* and *ADJUST* knobs as in the previous step to set the desired gateway address.

6. Run a browser on the computer and type in the IP address you set for the FS2. You should now see the FS2's *Status* screen.

When you can access the FS2 screens, turn to "Chapter 5: Browser Remote Control" on page 99 for details about configuring the FS2 using a browser.


1
Select the CONFIG Menu Group button
Config
Turn the SELECT knob to scroll to parameter menu 2.1 IP Config.
Parameter Menu Current Setting
Change setting to STATIC Address by turning the ADJUST knob.
2.1 IP Config
STATIC Address
SELECT
ADJUST
2
Select the CONFIG Menu Group button
Config
Turn the SELECT knob to scroll to parameter menu 2.2 IP Address. Turn SELECT again as needed to advance through the blinking octets.
Parameter Menu Current Setting
Push ADJUST to edit octets. Turn ADJUST to change values. Push ADJUST to save.
2.2 IP Address
192.168.0.2
SELECT
ADJUST
3
Select the CONFIG Menu Group button
Config
Turn SELECT to scroll to parameter menu 2.3 Subnet Mask. Turn SELECT again as needed to advance through the blinking octets.
Parameter Menu Current Setting
Push ADJUST to edit octets. Turn ADJUST to change values. Push ADJUST to save.
2.3 Subnet Mask
255.255.255.0
SELECT
ADJUST
4
Select the CONFIG Menu Group button
Config
Turn SELECT to scroll to parameter menu 2.4 Default Gateway. Turn SELECT again as needed to advance through the blinking octets.
Parameter Menu Current Setting
Push ADJUST to edit octets. Turn ADJUST to change values. Push ADJUST to save.
2.4 Default Gateway
192.168.0.1
SELECT
ADJUST

Setting FS2 Static IP Address

Using Ping to Test the Network Connection

If you have connected the FS2 to a computer and set up the IP address and still do not see the FS2 screens in your browser, you can ping the network to verify the connection. Simply run the Ping utility from a Mac OS X or Windows PC computer attached directly or on the same LAN as the FS2 as described below:

Mac Ping Procedure

1. Find the Utilities Folder inside of the Applications Folder.
2. Locate the "Terminal" utility application and double-click it.
3. On the FS2, select the *CONFIG* button and go to parameter menu 2.2 to read the IP address.
4. At the Mac terminal prompt, enter *ping* and the IP address noted in step 3. For example: ping 192.168.0.2
5. If successful, the ping utility will respond that packets were sent, received and how long it took. For example:
   64 bytes from 192.168.0.2: icmp_seq=0 ttl=64 time=0.590 ms
6. If unsuccessful, check the FS2 network settings and resolve the problem with your IT administrator.

Windows PC Ping Procedure

1. From the Start button, select the All Programs menu.
2. Select Accessories/Command Prompt from the All Programs list.
3. On the FS2, select the *CONFIG* button and go to parameter menu 2.2 to read the IP address.
4. In the PC *Command Prompt* utility, enter *ping* and the IP address noted in step 3. For example: ping 192.168.0.2
5. If successful, the ping utility will respond that packets were sent, received and how long it took. For example:
   64 bytes from 192.168.0.2: icmp_seq=0 ttl=64 time=0.590 ms
6. If unsuccessful, check the FS2 network settings and resolve the problem with your IT administrator.

Web Browser Control

To control the FS2 from a web browser on a network attached computer, enter the FS2 IP address as a URL in the browser. For example, if the FS2 IP address were "90.0.6.31", you would then type into the web browser: http://90.0.6.31. This topic is explained in greater detail in *Chapter 5: Browser Remote Control.*

Note: The webUI (browser GUI) will keep up with most changes initiated at the front panel. However, the webUI may not reconnect (displays "Disconnected") when network changes are initiated at the FS2 front panel. To manually reconnect, type the new IP address into the browser, or click the browser *Refresh* button. Sometimes the browser caches the old FS2 address. If you can't get the browser to connect, try clearing the Browser history to clear the cache, and then enter the new address again.

Software Update Installation

Although the FS2 comes from the factory pre-installed with software, it may not be as up-to-date as software posted on our AJA website. This topic describes the steps required to update the software in your AJA FS2.

Download the Latest FS2 Software

Current and past releases of FS2 software are available on the World Wide Web from AJA's website. To get the software, point your browser to the FS2 support page, which will contain helpful FS2 information and links to the updates: *http://www.aja.com/support/converters/converters-fs2.php*

Once you're at the update page, you can select FS2 software files to download to your Mac or PC for upgrading your local FS2 machine.

Unpack the Software

FS2 software update files are "ZIP" files that you can open with a number of standard and third party file compression applications. The software image that you'll install on the FS2 is a file with a name like *FS2_ver_1.0.0.0.bin* or similar.

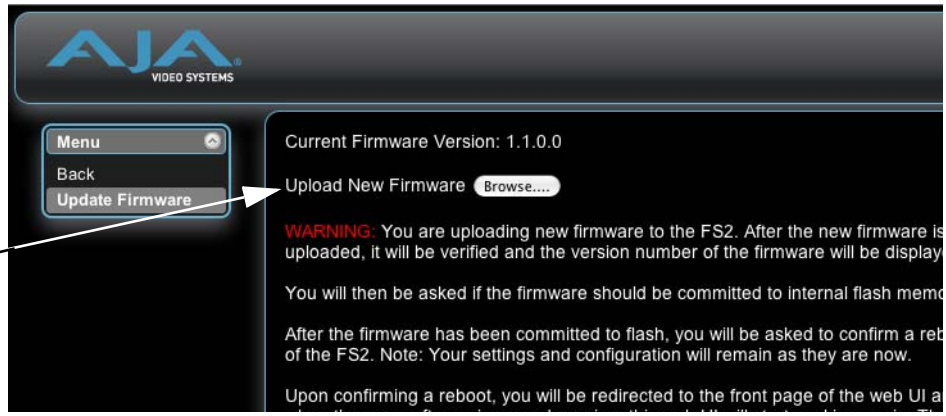
Note: Depending on your PC or Mac operating system settings, the ".bin" extension may not be visible to you in a file directory.

Uploading and Installing the Software to the FS2

Uploading and installing the software update requires a PC or Mac that can "see" the FS2 via its ethernet connection. Follow this procedure to install the software:

1. Point your browser at the FS2's upgrade page by clicking on the *Update Firmware* link at the bottom of the navigation box on the left-hand side of any FS2 web page. The FS2 web pages are discussed in *Chapter 5*.

After entering the Firmware menu, click Browse and follow the prompts.


AJA
VIDEO SYSTEMS
Menu
Back
Update Firmware
Current Firmware Version: 1.1.0.0
Upload New Firmware
Browse....
WARNING: You are uploading new firmware to the FS2. After the new firmware is
uploaded, it will be verified and the version number of the firmware will be displa
You will then be asked if the firmware should be committed to internal flash memo
After the firmware has been committed to flash, you will be asked to confirm a reb
of the FS2. Note: Your settings and configuration will remain as they are now.
Upon confirming a reboot, you will be redirected to the front page of the web UI a

Update Firmware Browser Screen

2. Click the *Browse...* button to find and select the downloaded file. For example: *FS2_ver_1.0.0.10.bin* contained in the file downloaded from AJA.
3. Click *OK* when asked if you want to *Upload Firmware*. The file uploads to the FS2 and is tested for validity. Incomplete, corrupted, or non-FS2 files are rejected. Wait for the procedure to complete—it will take only a few minutes. Progress bars show upload progress.
4. Click *Commit Uploaded Firmware* when prompted after the upload is finished. Progress bars show progress as the file is written to flash memory.

5. Click *Restart FS2 with New Firmware* to restart the FS2. This will take the FS2 offline for a minute or two. During the restart, progress is shown in the connection area in the upper right corner of the FS2 *Status* screen. After restart, the FS2 will be running the new software.
6. Once these steps are complete, the FS2 will be running the software, and the *Software Version* on the *Status* screen shows the new version number. Check that the new software is running by bringing up the FS2 web page again; the software version is displayed at the top of all FS2 web screens. If the FS2 did not update successfully, run through the update steps again.

Notes:

The configuration of the FS2 prior to the upgrade is preserved. The unit returns to service exactly as it was before the upgrade.

If there is a power outage or glitch during the software download, the FS2 will boot the older software version and you can restart the upgrade process. This happens because the FS2 has been designed with a safety feature where an internal "safe" copy of the previous software is retained in the event the updating process fails.

System Cabling

System Video/Audio Cable Connections

When installing your system, you'll make video and audio input/output connections. These connectors are explained individually in *Chapter 2*.

GPI Connections

Appendix B GPI Connector Pinout shows how to wire the GPI connector to work with external devices that you want to use to control the FS2 or that you want the FS2 to control. There are four inputs and four outputs. The GPI inputs and outputs are electrically isolated from the power and ground on the FS2 frame. Electrical isolation is provided for up to four pieces of external equipment. The following guidelines apply to the four GPI inputs and outputs:

- GPI In 1 and GPI Out 1 share a common isolated ground on pin 5 (GPI GND 1).
- GPI In 2 and GPI Out 2 share a common isolated ground on pin 6 (GPI GND 2).
- GPI In 3 and GPI Out 3 share a common isolated ground on pin 10 (GPI GND 3).
- GPI In 4 and GPI Out 4 share a common isolated ground on pin 11 (GPI GND 4).
- Pins 1 and 15, local chassis ground, may only be used as references when isolation is not required.
- All four GPI inputs are internally pulled high through a 10K ohm resistor to an isolated +5V supply, so that a relay contact closure or any device sinking at least 0.4 mA to ground will register a logic low.
- All four GPI outputs are +5V TTL compatible, sourcing up to 6mA and sinking up to 4mA each.

FS2 Audio Level Choices—Pro or Consumer, US or EBU

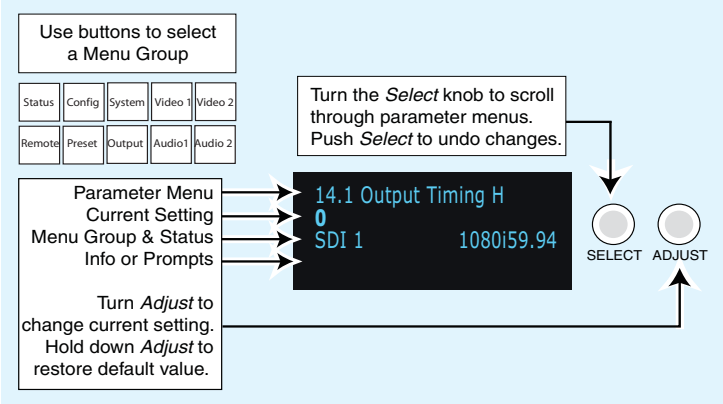
Since the FS2 handles both digital and analog audio and can convert between the two, it provides analog and digital audio level settings in the front panel menus and the remote web browser. Standard practice typically sets the maximum audio level approximately 20 db above the operating (alignment) level, allowing enough headroom to handle peaks without clipping. Because different countries and equipment types use different operating and maximum levels, the FS2 has several audio level settings. These settings allow you to set the relationship between the analog and digital audio levels to accommodate the equipment and audio operating standards you use.

The FS2 offers four settings shown in the following table. The analog audio levels listed in the table are defined in reference to 0 dBFS (where FS = full scale), which is the maximum level that can be represented digitally. Note that the test method for these levels uses a 1kHz sine wave.

FS2 Audio Level Settings

FS2 Audio Setting	Meaning
+24 dBu analog = 0 dBFS maximum audio level	**SMPTE standard (US)** With digital audio at the maximum possible level (before clipping), the expected analog audio input level is +24 dBu, and the output is scaled to this level. Typically, the US Standard Operating Level is +4 dBu analog or -20 dBFS digital. The FS2 +24 dBu setting allows 20 dB of headroom (+4 to +24 dBu) per the SMPTE RP-155 standard.
+18 dBu analog = 0 dBFS maximum audio level	**EBU standard (EU)** With digital audio at the maximum possible level (before clipping), the expected analog audio input level is +18 dBu, and the output is scaled to this level. Typically, the EU Alignment Level is 0dBu analog or -18 dBFS digital. The FS2 +18 dBu setting allows 18 dB of headroom (0 to +18 dBu) per the EBU R68 standard.
+15 dBu analog = 0 dBFS maximum audio level	**German standard** With digital audio at the maximum possible level (before clipping), the expected analog audio input level is +15 dBu, and the output is scaled to this level.
+12 dBu analog = 0 dBFS. maximum audio level	**Consumer equipment** With digital audio at the maximum level (before clipping), the analog audio input level is +12 dBu, and the output is scaled to this level. These levels are provided for consumer equipment that outputs lower audio levels than professional equipment. Consumer audio units are often given in dBV, with +12.2dBu equivalent to +10dBV. The standard operating level corresponds to -10dBV (-7.8dBu). The FS2 +12dBu setting provides approximately 20 dB of headroom (+10 to -10 dBV).

Chapter 4: Display Menus



Controlling the FS2 via Front Panel Display Menus

There are three ways to control the FS2: (1) direct control using the front panel buttons, knobs, and display menus, (2) remote control using a web browser, and (3) remote control using an optional remote panel. This chapter describes the first, using the front panel controls, which is the most direct and all-inclusive way to configure and use an FS2. The other methods are described in subsequent chapters.

In *Chapter 2* we discussed the panel controls overall, so please read and understand that material first. In this chapter we discuss each of the Parameter Menus and their use. These are the topics covered:

- "Menu Operation Examples" on page 40
- "STATUS Menu Group" on page 44
- "REMOTE Menu Group" on page 47
- "CONFIG Menu Group" on page 50
- "PRESET Menu Group" on page 57
- "SYSTEM Menu Group" on page 58
- "OUTPUT Menu Group" on page 66
- "VIDEO 1 and VIDEO 2 Menu Groups" on page 70
- "AUDIO 1 and AUDIO 2 Menu Groups" on page 91

Parameter Menus

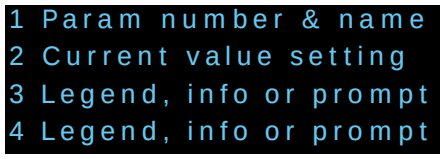
The front panel menu display contains four lines. These four lines present parameter menu "pages" used to configure and operate the FS2.

Each parameter menu page presents the following information:

First line—parameter number and name.

Second line—the editable value or values set for a parameter.

Third line and Fourth Lines—status, legends, or prompts. Not always used.



Four Lines of the Front Panel Display

The FS2 display presents five major types of menu pages:

- Status pages—present status information that cannot be changed.
- Simple parameter menus—contain a parameter number and name on line 1 and its current value setting on line 2. The line 2 value can be changed using *SELECT* and *ADJUST*. Example: *Output Format*.
- "Take action" parameter menus—contain a parameter number and name on line 1, and the value to "take" on line 2. A "take" prompt may appear on line 3. The line 2 value can be changed using *SELECT* and *ADJUST,* and the take or switch to the new value occurs when you press *ADJUST* momentarily. Examples: *Preset Save/Recall*.
- Multi-parameter menus—contain a parameter number and name on line 1 and multiple parameter values on line 2, each of which can be set separately using *SELECT* and *ADJUST*. In order to set all parameters, you must move to each parameter and set its value individually. Example: *Proc Amp* (to set Gain, Black Level, and Hue, you must select three separate parameters).
- Multiple field parameter menus—contain a parameter number and name on line 1 and its current value setting on line 2, consisting of multiple letter or number fields that must each be set individually. The line 2 fields can be changed using *SELECT* and *ADJUST*. Example: *IP Address*

Menu Group Buttons

As explained in *Chapter 2*, you enter a Menu Group whenever you push one of the ten Menu Group pushbuttons: STATUS, CONFIG, SYSTEM, VIDEO 1, VIDEO 2, REMOTE, REG, OUTPUT, AUDIO 1, and AUDIO 2. When you push a Menu Group button, the display changes to the selected menu group and shows the last viewed parameter menu.

Holding down any button enables coarse adjustment of the current parameter using the *ADJUST* knob.

SELECT and *ADJUST* Knobs

The *SELECT* and *ADJUST* knobs operate as follows:

- *Scroll menus*—Turn *SELECT* to scroll menus within the selected Menu Group.
- *Edit a menu*—Stop *SELECT* on a menu to select it for editing. If multiple values may be edited, such as an IP address, push *ADJUST* momentarily and then turn the *SELECT* knob to scroll through the values and select one for editing. The value blinks to indicate it is the one selected.
- *Change a value*—Turn *ADJUST* to change a value, number, or letter. Turning *ADJUST* forward (clockwise) or backward (counterclockwise) changes the value up or down, respectively. When you reach the end of the available values, the list starts over again at the beginning.
- *Make a coarse adjustment*—Holding down a Menu Group button enables coarse adjustment using *ADJUST* for wide-ranging values.
- *Undo a change*—Push *SELECT* during value editing to abort the edit and restore a value to its previous setting, if it has not already been saved.
- *Set factory default value*—Push and hold *ADJUST* for 4 seconds to set the parameter to its factory default value.
- *Save changes*—Parameter value changes are saved within a few seconds. For multiple values, such as IP addresses, push *ADJUST* momentarily (less than 4 seconds) to save or take parameter changes.

The remainder of this chapter presents menu examples followed by complete descriptions of the Menu Groups and Parameter Menus.

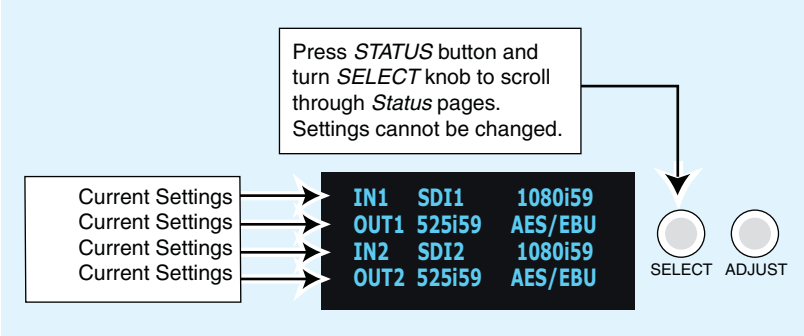
Menu Operation Examples

The following examples demonstrate typical menu operation. After this section, each Menu Group is described in detail.

Status Pages

These steps explain how to surf the *STATUS* menus.

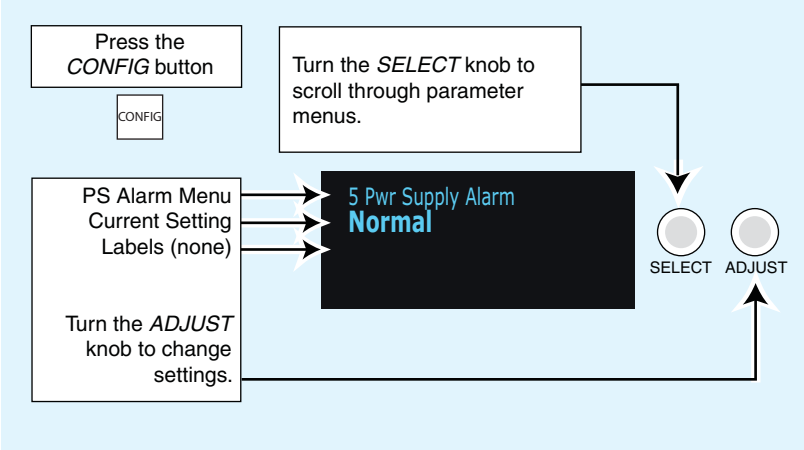
1. Press the *STATUS* Menu Group button.
2. Turn the *SELECT* knob forward and backward to display the *Status* pages. The display scrolls through the pages as you turn the knob. The *Status* displays simply show the status of important FS2 operational parameters.



Simple Menus: Config Format Alarm Filters

These steps explain how to surf and change simple menus, such as the Power Supply Alarm Filters.

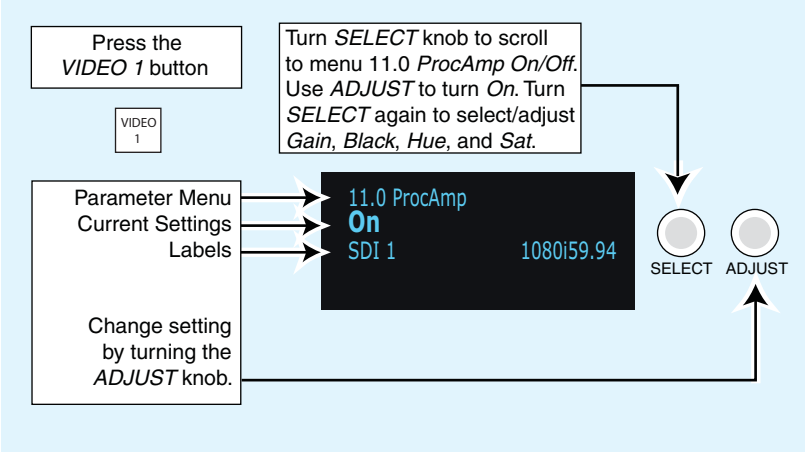
1. Press the *CONFIG* Menu Group button.
2. Turn the *SELECT* knob to access menu *5 Pwr Supply Alarm*. The default alarm setting is *Normal*.
3. Turn the *ADJUST* knob one click clockwise to change the setting to *Suppress*, which turns off the alarm so that it will never come on.
4. Turn the *SELECT* knob clockwise again to access menu *6.1 Vid1 Format Alarm*. Changing menus confirms the new *Pwr Supply Alarm* setting.
5. Now change the *Vid1* setting, using the *ADJUST* knob.
6. Continue by turning *SELECT* one click to access the *6.2 Vid2 Format Alarm* setting and again one click to access the *7 Reference Alarm Alarm* setting. Change the settings using the *ADJUST* knob, if you wish.



Multiple Parameter Menus: Video 1 ProcAmp

These steps explain how to surf and change multiple parameter menus, such as the *Vid1 ProcAmp* settings.

1. Press the *VIDEO 1* Menu Group button.
2. Turn the *SELECT* knob as necessary to display menu *11.0 ProcAmp*.
3. Turn the *ADJUST* knob to change the value setting from *OFF* (default) to *ON*.

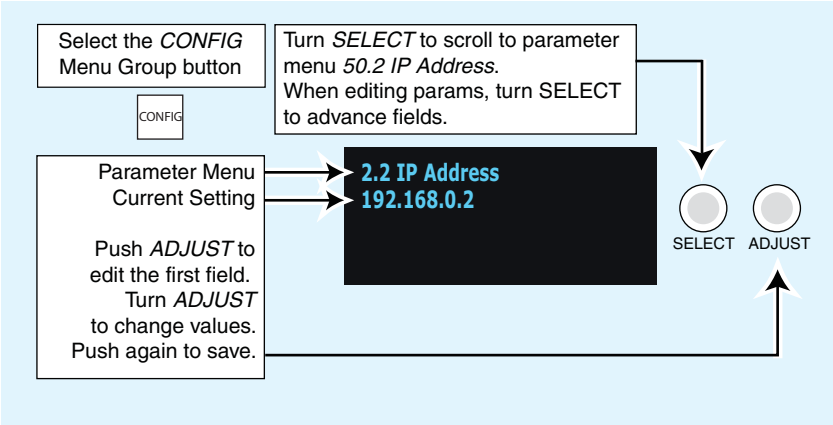

Press the VIDEO 1 button
VIDEO 1
Turn SELECT knob to scroll to menu 11.0 ProcAmp On/Off. Use ADJUST to turn On. Turn SELECT again to select/adjust Gain, Black, Hue, and Sat.
Parameter Menu
Current Settings
Labels
11.0 ProcAmp
On
SDI 1
1080i59.94
SELECT
ADJUST
Change setting by turning the ADJUST knob.

4. Turn the *SELECT* knob clockwise to access menu *11.1 ProcAmp Gain* and set the Gain as desired using the *ADJUST knob*.
5. Turn the *SELECT* knob one click clockwise to confirm the setting and advance to the *11.2 ProcAmp Black* menu. Turn *ADJUST* to set the black level.
6. Turn the *SELECT* knob clockwise again one click to confirm the setting and advance to the *11.3 ProcAmp Hue* menu. Turn *ADJUST* to set the hue.
7. Turn the *SELECT* knob clockwise again one click to confirm the setting and advance to the *11.4 ProcAmp Sat* menu. Turn *ADJUST* to set the saturation.

Multiple Field Parameters: IP Address

These steps explain how to surf and change multiple field parameter menus, such as the *IP Address* settings, where there are multiple fields to set within the value.

1. Press the *CONFIG* Menu Group button. The *Config* menus appear.
2. Turn the *SELECT* knob clockwise to access the *2.1 IP Config* menu. Turn the *ADJUST* knob to change the setting to *Static Addr*. This setting allows you to manually set the IP address in the following steps.
3. Turn the *SELECT* knob clockwise one click to access menu *2.2 IP Address*. The current IP address appears on the second line. For example: 10.2.42.8
4. Push the *ADJUST* knob momentarily to highlight the first field, which is the octet (group of numbers) to the left of the first period. The numbers blink to indicate they are ready for editing.
5. Turn the *ADJUST* knob to change the blinking field value.
6. Turn the *SELECT* knob to highlight the next field, a group of numbers to the right of the first period. The field will blink when they are ready for editing.
7. Turn the *ADJUST* knob to change the blinking field value. For coarse adjustment of wide-ranging values, hold down *CONFIG* and turn *ADJUST*.
8. Repeat this process of selecting fields and changing them until all fields have been changed as desired.
9. Push the *ADJUST* knob quickly to confirm all settings. Alternatively, you can scroll counterclockwise back through the fields, stopping on any of them to change them. They must be blinking before they can be changed.



Notes:

- To begin editing the first field in the parameter, push *ADJUST* momentarily.
- To confirm (save) edits, push the *ADJUST* knob momentarily again. This saves the edits and exits the edit mode.
- To undo edits to all of the fields before the changes are confirmed, push the *SELECT* knob. This returns all fields to their previous settings.
- To reset the entire parameter to the factory default value, push in and hold down the *ADJUST* knob for at least 4 seconds.

Next, all menus in the Menu Groups are described in detail.

STATUS Menu Group

The *Status* Menu Group contains a series of *Status* display pages that you can scroll using the *SELECT* knob. The various Status pages are actually just displays, not menus, since they don't include menu numbers or editable values. The *ADJUST* knob doesn't affect the *Status* display pages.

When you press the *STATUS* button, the display shows the first menu unless there is an active alarm. If an alarm is active, the relevant alarm status page is displayed first. If more than one alarm is active, the highest priority alarm page is displayed first.

S.1 I/O Status

This menu shows the current primary settings for Processors 1 and 2.

S.1 I/O Status	Display			Description
	IN1	Sel Video	Format	Processor 1 selected video input and detected format.
	OUT1	Sel Video	Audio	Processor 1 video output format and selected audio input.
	IN2	Sel Video	Format	Processor 2 selected video input and detected format.
	OUT2	Sel Video	Audio	Processor 2 video output format and selected audio input.

S.2 Vid1 Format Status

This menu shows the current primary settings for Processor 1.

S.2 Vid1 Format Status	Display			Description
	VID1	Input Source	Format	Selected Processor 1 video input source and format.
	BKGD	Backgd Source		Selected Background video source.
	GEN	Genlock Source	Format	Selected Genlock source and format.
	OUT		Format	Selected Processor 1 output format.

S.3 Vid1 Format Alarm Status

This menu shows the Processor 1 alarm status. Absence of alarm shows as *OK*. If selections are incompatible, the status of the affected signal shows *incompat*.

5.3 Vid1 Format Alarm Status	Display			Description
	VID1	Input Source	Status	Selected Processor 1 video input source alarm status.
	BKGD	Backgd Source	Status	Selected Background video source alarm status.
	GEN	Genlock Source	Status	Selected Genlock source alarm status.
	OUT		Status	Selected Processor 1 output format/alarm status.

S.4 Vid2 Format Status

This menu shows the current primary settings for Processor 2.

S.4 Vid2 Format Status	Display			Description
	VID2	Input Source	Format	Selected Processor 2 video input source and format.
	BKGD	Backgd Source		Selected Background video source.
	GEN	Genlock Source	Format	Selected Genlock source and format.
	OUT		Format	Selected Processor 2 output format.

S.5 Vid 2 Format Alarm Status

This menu shows the Processor 2 alarm status. Absence of alarm shows as *OK*. If selections are incompatible, the status of the affected signal shows *incompat*.

S.5 Vid2Format Alarm Status	Display			Description
	VID2	Input Source	Status	Selected Processor 2 video input source alarm status.
	BKGD	Backgd Source	Status	Selected Background video source alarm status.
	GEN	Genlock Source	Status	Selected Genlock source alarm status.
	OUT		Status	Selected Processor 2 output format/alarm status.

S.6 Output Status

This menu shows the video source selected for each of the video outputs.

5.6 Output Status	Display		Description
	SDI1	Selected Video Processor	Selected Processor feeding the SDI 1 output.
	SDI2	Selected Video Processor	Selected Processor feeding the SDI 2 output.
	Fiber1	Selected Video Processor	Selected Processor feeding the Fiber 1 output.
	Fiber2	Selected Video Processor	Selected Processor feeding the Fiber 2 output.
	HDMI	Selected Video Processor	Selected Processor feeding the HDMI output.
	Cmpn	Selected Video Processor	Selected Processor feeding the Component output.
	Cmps	Selected Video Processor	Selected Processor feeding the Composite output.

S.7 Power/Temp Alarm

This menu shows the power supply status of the FS2. If a power supply is unplugged, the display top line indicates *PS OFF* or *PS Error*.

S.7 Power/Temp Alarm	Display		Description
	PS1 Alarm	Status	Displays the state of the PS1 power supply (OK or ERROR).
	PS2 Alarm	Status	Displays the state of the PS 2 power supply (OK or ERROR).

S.8 Caption Status

This menu shows what type of closed caption data is selected and whether closed caption data is present on the selected video input.

5.8 Caption Status	Display	Description
	VID1CC Caption Type & Presence	Processor 1 selected caption type (SD/HD/Invalid) and presence (Detected/Not detected/Pass through).
	ViD2CC Caption Type & Presence	Processor 2 selected caption type (SD/HD/Invalid) and presence (detected/not detected/Pass through).

S.9 Dolby Status

This menu shows the FS2's Dolby Decoder settings.

S.9 Dolby Status	Display	Description
	DolbyDec	Displays Dolby Status: Unknown, NotInstl, DolbyE, DlbyDgtl or PCM.
	DolBDecM	Displays Dolby Decoder Mode setting: Auto, Dolby E or Dolby D.
	DolBDAx0	Displays Dolby Decoder Aux Out setting: Program1 (through) Program8.
	DolBDAxM	Displays Dolby Decoder Aux Mode setting: Lt/Rt, Lo/Ro, Mono, Mute.

S.10 System Name

This menu shows the FS2's System Name.

S.9 System Name	Display	Description
	System Name	Displays the System Name as set in *Config* menu 1.
	IP addr	Shows the FS2's IP address.
	IP Mask	Shows the FS2's IP mask.
	Version	Shows the FS2's software version number.

REMOTE Menu Group

The *REMOTE* Menu Group lets you set up how you want the FS2 to be controlled. Control options include the front panel, a remote computer running a browser, a remote control panel, and GPI inputs and outputs.

1 Remote Control

This parameter determines how the FS2 panel responds to controls locally from the front panel and from a network attached computer with a web browser (or both). The selected mode is indicated by the color of the *REMOTE* LED. (**Note:** the *REMOTE* LED and other front panel indicators are described in *Chapter 2*.)

1 Remote Control	Selections	Selection Descriptions
	LOCAL + REMOTE *(default)*	Control the FS2 from the front panel, a remote control panel, or a network-attached browser. The *REMOTE* LED lights amber.
	LOCAL ONLY	Control the FS2 only from the front panel (browsers cannot change parameters). The *REMOTE* LED lights green.
	REMOTE ONLY	Control the FS2 only from a network attached browser or remote control panel. The *REMOTE* LED lights red.

1.1 Authentication

This parameter enables or disables an authentication login requirement. By default this parameter is set to *Disabled*.

When you select *Login* via the front panel parameter, you must then go to the browser interface to perform a login each time you access the FS2. The browser presents the login screen first, requiring you to log in before you can access any other browser screens. The password is initially set to the default value, but you can change it using the Remote browser screen. The default password is *password*.

Note: If authentication is used, it provides only a minimum security safeguard against unauthorized use of the FS2. The authentication mechanism is simple and does not provide robust security.

1.1 Authentication	Selections	Selection Descriptions
	Disabled *(default)*	Disables the requirement for a login password. No password is needed.
	Login	Login is required via the web browser interface befor e changes can be made in FS2 configuration. The default password is “password”.

2.1–4 GPI IN 1–4 Response

The setting of this parameter determines what happens when a GPI trigger is received at the FS2's *GPI* Inputs (1–4). A GPI Trigger is defined as a TTL low voltage level (0 to 0.8V with respect to its isolated ground pin). The GPI interface pinout and specifications are discussed in "Appendix B: GPI & RS422 Pinouts" on page 169. Input video sources selected by GPI trigger remain selected until the trigger is released. GPI Inputs light the front panel EXT LED when triggered.

2.1–4 GPI IN 1–4 Response	Selections	Selection Descriptions
	No Action *(default)*	Performs no action.
	PRESET 1–10	Recalls the specified PRESET configuration.
	Vid1 Freeze	Freezes the current video frame at its outputs. Freezing stops when the GPI trigger is released.
	Vid1 SDI1 In	Selects SDI1 as the Vid1 video input.
	Vid1 SDI2 In	Selects SDI2 as the Vid1 video input.
	Vid1 SDI DLink	Selects Dual-Link mode for the SDI input.
	Vid1 Fiber1 In	Selects Fiber1 as the Vid1 video input.
	Vid1 Fiber2 In	Selects Fiber2 as the Vid1 video input.
	Vid1 Fbr DLink	Selects Dual-Link mode for the Fiber input.
	Vid1 HDMI In	Selects HDMI In as the Vid1 video input
	Vid1 Cmpst In	Selects Composite In as the Vid1 video input.
	Vid1 Cmpnt In	Selects Component In as the Vid1 video input.
	Vid 1 ARC Off	Turns Off SD to SD aspect ratio conversion.
	Vid1 ARC LTBX	Converts 16:9 anamorphic video to letterbox.
	Vid1 ARC H CP	Converts 16:9 anamorphic video to 4:3 standard (H crop—crops left and right edges of video).
	Vid1 ARC PLBX	Converts 4:3 standard video to 16:9 anamorphic (pillarbox).
	Vid1 ARC V CP	Converts letterbox video to 16:9 anamorphic (V crop).
	Vid1 ARC 14x9	Converts 16:9 anamorphic video to 14:9 cropped.
	Vid1 DC Crop	Downconverts HD source to cropped 4x3 picture.
	Vid1 DC ANA	Downconverts HD source to anamorphic picture.
	Vid1 DC 14x9	Downconverts HD source to 14x9 picture.
	Vid1 DC Auto AFD	Downconverts HD source automatically using the best mode for the input video Active Format Description (AFD) code.
	Vid1 DC LTBX	Downconverts HD source to letterbox picture.
	Vid1 UC 4x3 PB	Upconverts SD source to 4x3 pillarbox.
	Vid1 UC 14x9 PB	Upconverts SD source to 14x9 pillarbox.
	Vid1 UC FLSCR	Upconverts SD source to full screen.
	Vid1 UC LB FUL	Upconverts SD source from letterbox to full.
	Vid1 UC WDZM	Upconverts SD source to a wide zoom.
	Vid2...	Repeat the above for Vid2 except that UC Wide Zoom is replaced by Vid2 UC CSTM, which Upconverts an SD source to a user-specified format.

3.1–4 GPI 1–4 OUT

The setting of this parameter determines whether certain FS2 events will generate a GPI trigger output at *GPI* outputs 1, 2, 3, or 4. The GPI interface pinout is presented in "Appendix B: GPI & RS422 Pinouts" on page 169.

3.1–4 GPI 1–4 OUT	Selections	Selection Descriptions
	No Action *(default)*	Does not trigger a GPI output regardless of event.
	Alarm	Generates a GPI output trigger if an internal alarm condition occurs.
	No Video 1	Generates a GPI output trigger if no video is detected at the selected input.
	No Video 2	Generates a GPI output trigger if no video is detected at the selected input.
	No Ref	Generates a GPI 1 output trigger if no video is detected at the *Ref* video input.

Interaction of Presets and GPIs

If you use a GPI input trigger to recall a preset, the recall changes the *GPI IN Response* setting to whatever *GPI IN Response* setting the preset contains. As the following examples explain, this feature offers both the power of serial recalls and the possibility of triggering a recall that changes *GPI IN Response* to something unintended.

Example of a Serial Recall

The advantage of using *GPI IN Response* with presets is that you can trigger a series or even a looping series of preset recalls. For example, suppose *GPI IN 1 Response* in Preset 1 is set to Preset 2, and *GPI IN Response* in Preset 2 is set to Preset 1. Triggering the GPI will toggle between the two presets.

Example of an Unintended Recall

Suppose you trigger *GPI IN 1* while the current *GPI IN 1 Response* parameter is set to Preset 1. This recalls Preset 1 as expected. However, suppose Preset 1 contains a stored *GPI IN 1 Response* setting of *No Action*. If you trigger GPI IN 1 later, expecting to recall Preset 1 again, the FS2 instead performs *No Action*. To prevent unexpected changes in the *GPI IN Response* parameters, set these parameters as desired before storing presets; in the example, set *GPI IN 1* to Preset 1 before you store Preset 1.

CONFIG Menu Group

The *CONFIG* Menu Group includes parameters for setting up the FS2's network, system name, SNMP, alarm, and screensaver configurations.

1 System Name

This parameter defines a unique name for the FS2. This same name is used both when displaying systems via the web interface and when displaying the FS2's screen saver.

1 System Name	Selections	Selection Descriptions
	Variable	Set the system name, up to 20 characters. (See the note below for details.) *Default:* aja-FS2

Note: Set the name as follows:
Push *ADJUST* momentarily to enter character editing mode.
Turn *SELECT* to advance the blinking cursor to each character.
Turn *ADJUST* to scroll through the choices for each character. These characters are allowed: A through Z (uppercase), a through z (lowercase), numerals, hyphen (-), and period (.). Leave the desired character selected and advance to the next one.
Push *ADJUST* to save and activate the name after all characters are defined, or to abandon changes before saving, push *SELECT*. To return to the default name at any time, hold down *ADJUST*.

To eliminate trailing spaces or characters in order to shorten an existing system name, overwrite them with a hyphen (-). Spaces cannot be entered from the front panel but must be entered through the browser.

2.1 IP Config

This parameter determines the type of TCP/IP network configuration used by the FS2. (Networking is discussed in *Chapter 3, Network Connection*.) Consult your network administrator about how to set this value.

2.1 IP Config	Selections	Selection Descriptions
	DHCP *(default)*	Select automatic IP address assignment from the LAN DHCP server. If the FS2 cannot find a DHCP server, it fails over to the static IP address.
	Static Addr	Assign a static IP address manually (using parameters 2.2, 2.3, and 2.4). The factory default static IP address: 192.168.0.2

2.2 IP Address

This parameter determines the static IP address used by the FS2 for TCP/IP networking. (Networking is discussed in *Chapter 3, Network Connection*.) Consult your network administrator about how to set this value.

2.2 IP Address	Selections	Selection Descriptions
	IP Address variable	If *2.1* is set to *DHCP* dynamic addressing (default), the IP Address is set automatically by the network's DHCP server. If *2.1* is set to *Static Addr*, manually enter an IP address. (See note below.) If 2.1 is set to *DHCP* and there is a DHCP failure, the IP address is set to the static IP address. The default static IP address is 192.168.0.2.

Note: For *2.2* to *2.4*, set the octets (numbers between periods) as follows:
Push *ADJUST* momentarily to enter edit mode.
Turn *SELECT* to select the octet you want to edit, indicated by blinking.
Turn *ADJUST* to enter the new value.
Push *ADJUST* momentarily to save and activate the new setting.

If you need to revert to the previous setting (undo changes), push *SELECT*. If you want to revert to the default value, hold down *ADJUST* for 4 seconds.

2.3 Subnet Mask

This parameter determines the subnet mask used by the FS2 for TCP/IP networking. (Networking is discussed in *Chapter 3, Network Connection*.) Consult your network administrator about how to set this value.

2.3 Subnet Mask	Selections	Selection Descriptions
	Subnet Mask variable	Enter a subnet mask compatible with your LAN. This is only needed for Static IP configurations. (See the note for 2.2 for instructions.) If 2.1 is set to DHCP, the Subnet Mask is set by the DHCP server and cannot be changed by the user. If 2.1 is set to *Default Addr,* the default *Subnet Mask* is 255.255.255.0

2.4 Default Gateway

This parameter determines the gateway or router used on your LAN for TCP/IP networking. (Networking is discussed in *Chapter 3, Network Connection*.) Consult your network administrator about how to set this value.

Without a properly configured default gateway (whether you have a router/gateway or not), the FS2 will be unable to see other FS2s on the network, although you may still be able to control this FS2 via a web browser. Also, without a proper gateway defined, the discovery feature "Available FS2s—Click to Refresh" on the *Network* web page will not work correctly and list other FS2s on the network.

2.4 Default Gateway	Selections	Selection Descriptions
	Gateway Address variable	Enter the address of the gateway or router used to connect the FS2 to the network. (See the note for 2.2 for instructions.) *Default:* 192.168.0.1

3 MAC Address (view only)

Selecting this parameter allows you to view the FS2 MAC address. The MAC address is a unique value associated with the FS2's internal network adapter. MAC addresses are also known as hardware addresses or physical addresses. MAC addresses uniquely identify an Ethernet adapter on a LAN.

MAC address format: MM:MM:MM:SS:SS:SS
The value is 12-digit hexadecimal, where the first half identifies the manufacturer and the second half identifies the unique serial number.

4.0 SNMP Enable

The *SNMP Enable* parameter turns ON and OFF all SNMP messaging between the FS2 and an external client. Refer to *Chapter 6* for a description of SNMP and how the FS2 supports it. When SNMP is enabled, one or more of these alarms may be sent by the FS2 as a trap message:

- Power supply failure or disconnection: FS2PSAlarm (see parameter *5*)
- Reference video: FS2REFAlarm (see parameter *60.4*)
- Format: FS2FMT1Alarm for Vid1 (see parameter *6.1*)
- Format: FS2FMT2Alarm for Vid2 (see parameter *6.2*)
- Format—Background Jam: FS2JAM1Alarm for Vid1 (see parameter *6.1*)
- Format—Background Jam: FS2JAM1Alarm for Vid2 (see parameter *6.2*)
- Temperature of FS2 is over limit (internally): FS2OVRAlarm

4.0 SNMP Enable	Selections	Selection Descriptions
	Disable *(default)* Enable 1 Enable Both	When set to *Disable*, the FS2 will not issue SNMP trap messages. When set to *Enable 1*, the FS2 issues SNMP trap messages to Trap Destination 1 (parameter *4.1*) and as defined in the MIB. When set to *Enable Both*, the FS2 issues SNMP trap messages to Trap Destination 1 and 2 (parameters *4.1* and *4.3*) and as defined in the MIB.

4.1 SNMP Trap Destination 1

This parameter determines the *SNMP Trap Destination* IP address where trap messages issued by the FS2 will be sent. This parameter is available only if parameter *4.0 SNMP Enable* is set to *On*.

4.1 SNMP Trap Dest 1	Selections	Selection Descriptions
	IP Address	Set the desired IP address where traps will be sent (usually a client on your LAN). (See the note below for instructions.) *Default:* 192.168.0.3

Note: Set the IP address octets (numbers between periods) as follows:
Push *ADJUST* momentarily to enter edit mode.
Turn *SELECT* to select the octet you want to edit, indicated by blinking.
Turn *ADJUST* to enter the new value.
Push *ADJUST* momentarily to save and activate the new setting.

If you need to revert to the previous setting (undo changes), push *SELECT*. If you want to revert to the default value, hold down *ADJUST* for 4 seconds.

4.2 SNMP Trap Port 1

This parameter determines the *SNMP Trap Port 1* used for sending destination #1 trap messages. UDP Port 162 is the default used for SNMP trap messages. However, if this port is being used by another protocol or service, you can change the setting by modifying this parameter. This parameter is available only if parameter *4.0 SNMP Enable* is set to *On*.

4.2 SNMP Trap Port 1	Selections	Selection Descriptions
	Variable	Turn the *ADJUST* knob to select a UDP port for sending FS2 trap messages. *Default:* 162

Note: The *SNMP Trap Port* number does not blink when changed (as does the Trap Destination IP address); if you change the port number and exit the parameter, the port changes immediately to the new value.

4.3 SNMP Trap Destination 2

This parameter determines the secondary *SNMP Trap Destination* IP address where trap messages issued by the FS2 will be sent (if desired). This parameter is available only if parameter *4.0 SNMP Enable* is set to *On*.

4.3 SNMP Trap Dest 2	Selections	Selection Descriptions
	IP Address	Set the desired IP address where traps will be sent (usually a client on your LAN). (See the note in 4.2 for instructions.) *Default:* 192.168.0.3

Note: Set the IP address octets (numbers between periods) as follows:
Push *ADJUST* momentarily to enter edit mode.
Turn *SELECT* to select the octet you want to edit, indicated by blinking.
Turn *ADJUST* to enter the new value.
Push *ADJUST* momentarily to save and activate the new setting.

If you need to revert to the previous setting (undo changes), push *SELECT*. If you want to revert to the default value, hold down *ADJUST* for 4 seconds.

4.4 SNMP Trap Port 2

This parameter determines the *SNMP Trap Port* used for sending destination #2 trap messages. UDP Port 162 is the default used for SNMP trap messages. However, if this port is being used by another protocol or service, you can change the setting by modifying this parameter. This parameter is available only if parameter *4.0 SNMP Enable* is set to *On*.

4.4 SNMP Trap Port 2	Selections	Selection Descriptions
	Variable	Turn the *ADJUST* knob to select a UDP port for sending FS2 trap messages. *Default:* 162

5 Power Supply Alarm

This parameter controls how the FS2 alarm responds to power supply disconnection or failure. By default (*Normal*) the alarm is triggered anytime either of the two internal power supplies fails or is disconnected from a power source (becomes unplugged). If the FS2 will be connected using only one power cord and supply, you can suppress the alarm. The *ADJUST* knob changes the setting, and the change is automatically saved.

5 Power Supply Alarm	Selections	Selection Descriptions
	Normal *(default)*	Alarm triggers if either internal power supply experiences a failure or is disconnected from mains power.
	Suppress	Alarm will not be triggered by a power supply failure or disconnection from power.

6.1 Vid1 Format Alarm

When set to *Normal* (default), an alarm is triggered whenever the selected input video signal format of Video Proc 1 is incompatible with the selected output format (refer to the matrix of inputs and compatibilities presented in *Chapter 2*). If you want the FS2 alarm to only trigger on hardware failures, you can suppress the *Format Alarm*. The front panel Vid 1 FMT ERR LED lights when format errors are detected even if this parameter is set to *Suppress*. The *ADJUST* knob changes the setting, and the change is automatically saved.

6.1 Vid 1 Format Alarm	Selections	Selection Descriptions
	Normal *(default)*	Alarm triggers if the format of the selected input video signal is incompatible with the selected output format.
	Suppress	Alarm will not be triggered by a format incompatibility.

6.2 Vid2 Format Alarm

When set to *Normal* (default), an alarm is triggered whenever the selected input video signal format of Video Proc 2 is incompatible with the selected output format (refer to the matrix of inputs and compatibilities presented in *Chapter 2*). If you want the FS2 alarm to trigger only on hardware failures, you can suppress the *Format Alarm*. The front panel Vid 2 FMT ERR LED lights when format errors are detected even if this parameter is set to *Suppress*. The *ADJUST* knob changes the setting, and the change is automatically saved.

6.2 Vid 2 Format Alarm	Selections	Selection Descriptions
	Normal *(default)*	Alarm triggers if the format of the selected input video signal is incompatible with the selected output format.
	Suppress	Alarm will not be triggered by a format incompatibility.

7 Reference Alarm

This parameter controls how the FS2 responds when one of the Video Processors has a format that is incompatible with the Reference video signal. When set to *NORMAL,* the alarm triggers if the Reference signal is not detected or is incompatible with the processor format. If you want the FS2 Reference alarm to trigger only on hardware failures, you can suppress the alarm. The *ADJUST* knob changes the setting, and the change is automatically saved.

7 Reference Alarm	Selections	Selection Descriptions
	Normal *(default)*	Alarm triggers if the reference signal is not detected or is incompatible with the processor format.
	Suppress	Alarm will not be triggered by reference errors.

8 Hidden Menus

This parameter lets you choose whether to hide or show inactive menus.

8 Hidden Menus	Selections	Selection Descriptions
	Hide Inactive *(default)*	Hides menus that are not in use.
	Show All	Shows all menus, even those that are not in use.

9 Display Intensity

This parameter determines the brightness of the alphanumeric display and front panel LEDs.

9 Display Intensity	Selections	Selection Descriptions
	Variable	Turn the *ADJUST* knob to dim or brighten the alphanumeric display and activity indicator LEDs in steps from 1 (dim) to 8 (brightest). Press *SELECT* to revert to previous, or hold down *ADJUST* to restore the factory default setting. *Default:* 6

10 Serial Number This parameter displays the FS2's unique serial number.

11 Software Version This parameter displays the FS2's software version number.

12 Reboot This parameter reboots the FS2. During reboot, the display shows *[Rebooting]*, goes dark momentarily, and then shows the percentage of progress as the system reboots. Rebooting takes a couple of minutes.

12 Reboot	Selections	Selection Descriptions
	(Both=Reboot)	Press and hold both front panel knobs simultaneously until the system reboots.

PRESET Menu Group

1 Recall Preset

This parameter recalls an FS2 preset configuration from the selected storage register. Twenty named and numbered storage registers are available (1–20)., together with a read-only Factory Preset. A preset is a set of all System, Video 1/2, Audio 1/2, and Output parameters as they were set at the time the preset was stored.

1 Recall Preset	Selections	Selection Descriptions
	Recall [Preset 1–20]	The display shows the current preset register number and name. Turn *ADJUST* to select the preset number to recall (1-20), and then push *ADJUST* momentarily to perform (take) the recall.
	0	Recalls factory values. Turn *ADJUST* left one click from Preset 1 to see the *Factory Preset* (Preset 0). Then push *ADJUST* momentarily to perform (take) the recall. User preferences, network settings, and existing Presets are not affected by recalling the Factory Preset.

Caution: *When you push the ADJUST knob to recall a configuration, the recalled configuration immediately replaces the system's existing configuration. All previous settings are lost unless you have previously stored them in a user register or computer file.*

During recall, the display reads, *Recalling* until the recall is finished. On recall completion, the displays shows the success or failure: *Recalled*, *Failed*, or *Empty*. A failed or empty recall does not recall anything and leaves the FS2 as it was. (Preset registers are empty until you store something in them.)

2 Store Preset

This parameter stores the current FS2 configuration into one of twenty available named and numbered preset configuration storage registers (1–20). A preset is a set of all System, Video 1/2, Audio 1/2, and Output parameters as they are set at the time the preset is stored.

2 Store Preset	Selections	Selection Descriptions
	Store	The display shows the current preset register number and name. Turn *ADJUST* to select the preset number to store, and then push and hold down *ADJUST* to perform (take) the store.

During the store, the display reads, *Saving* until the store is finished. On store completion, the display shows *Complete* or *Failed*. A failed store does not store anything and leaves the preset register as it was. To retry a failed store, turn *SELECT* to another preset number and then back to the desired preset number.

Interaction of Presets and GPIs

Triggering presets using GPI inputs offers considerable power but also requires some care to avoid unexpected results. If you plan to trigger presets using GPIs, please see the information about the "Interaction of Presets and GPIs" on page 49.

SYSTEM Menu Group

1 Component In Format

This parameter configures the format of the *Component* video input for SMPTE, Beta, or Composite. Selecting *Composite (Y)* programs the *Component (Y/G)* input to accept a composite signal. In this case, all parameters set to a value of *Component* are subject to and influenced by the composite signal on the *Component Y/G* input. For example, in the *VIDEO* menu, setting *Video1 Input* to the value of *Component*, switches the composite signal on the *Component Y/G* input into the Video 1 Processor.

1 Cmpnt In Format	Selections	Selection Descriptions
	SMPTE YPbPr *(default)*	Configure the Component Video Input source as SMPTE YPbPr. This is the default for HD component video.
	Beta YPbPr	Configure the Component Video Input source as Beta YPbPr (standard definition).
	Composite (Y)	Configure the Component Video Input source as composite, providing a second composite input (requires version 1.1 firmware).

2 Component Out Format

This parameter configures the format of the *Component* video output for SMPTE, Beta, RGB, or Composite. Selecting *Composite (Y)* programs the *Component (Y/G)* output to deliver a composite signal. In this case, all parameters set to a value of *Component* are subject to and influenced by the composite signal on the *Y/G Component* output. For example, in the *OUTPUT* menu, *Component Out*, selecting *Processor2* will switch the composite signal from Video Processor 2 to the *Component Y/G* connector.

2 Cmpnt Out Format	Selections	Selection Descriptions
	SMPTE YPbPr *(default)*	Configure the Component Video Output as SMPTE YPbPr. This is the default for HD component video.
	Beta YPbPr	Configure the Component Video Output as Beta YPbPr (SD).
	RGB	Configure the Component Video Output as RGB.
	Composite (Y)	Configure the Component Video Output source as composite, providing a second composite output (requires version 1.1 firmware).

3 Analog Audio Std

This parameter sets the *Analog Audio Input* and *Output* levels of the FS2 with reference to full scale digital (0 dBFS). Selections range from consumer levels (+12 dBu) to SMPTE professional (+24 dBu).

3 Analog Audio Std		Description of Choices
	+24 dBu *(default)*	Select +24 dBu as the expected analog audio level.
	+18 dBu	Select +18 dBu as the expected analog audio level.
	+15 dBu	Select +15 dBu as the expected analog audio level.
	+12 dBu	Select +12 dBu as the expected analog audio level.
		(Above settings correspond to maximum amplitude–0 dBFS)

Note: See *Chapter 3 FS2 Audio Level Choices—Pro or Consumer* regarding audio levels.

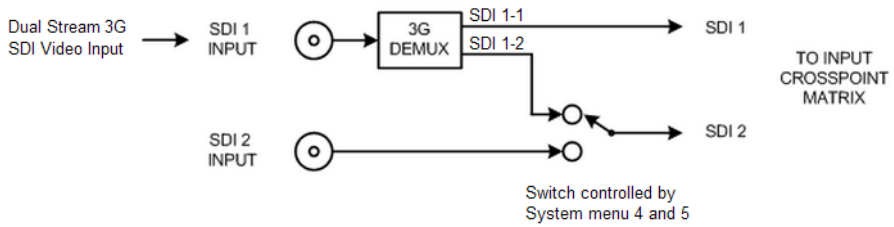
4 SDI1 3G Detect

This parameter configures 3G operation of the SDI 1 video input. The input can be set for *1080p50/60* (single video), *Dual Stream* 3G SDI (two muxed videos), or *Auto-Detect* whether the input is 1080p50/60 single or Dual Stream 3G video (requires SMPTE Format ID to be present in the SDI Input).

In *Auto Detect* mode, the hardware looks for SMPTE 352 Payload ID ANC data on the video inputs to determine whether there are two independent 1080i signals (Dual Stream) or a single 1080p50/60 signal. If there is no SMPTE 352 data, the default is to assume *1080p50/60* (single), but you can manually instruct the FS2 to always assume either *1080p50/60* or *Dual Stream* by selecting one of those choices.

In *1080p50/60* mode, the system always assumes that the input is a single 1080p50/60 signal (even if there is SMPTE 352 data to the contrary).

In *Dual Stream* mode, the system always assumes (even if there is SMPTE 352 data to the contrary) that the input consists of two multiplexed independent 3G video streams . The signals are demuxed as shown.



Dual Stream 3G Mode Schematic

4 SDI1 3G Detect	Selections	Selection Descriptions
	Auto Detect *(default)*	Automatically detects presence of 1080p50/60 or Dual Stream video.
	1080p50/60	Configures the SDI1 input for 1080p50/60 (single) video.
	Dual Stream	Configures SDI 1 for Dual Stream 3G video (uses SDI 1 and SDI 2 in Input Crosspoint matrix).

5 SDI2 Input Protect

This parameter allows you to protect Input SDI 2 from being taken by a *Dual Stream* selection made in menu 4.

In the *Normal* setting (default), the SDI 2 video signal always comes from the SDI 2 physical input. Choosing *Auto Detect* or *Dual Stream* in parameter 4 does not switch away from the physical input.

In the *Dual Stream* setting, the FS2 assumes both channels of Dual Stream 3G video are muxed onto a single wire at the SDI1 input. The SDI 2 video signal is then taken internally from the SDI 1 Stream 2 signal instead of the SDI2 In connector.

5 SDI2 Input Protect	Selections	Selection Descriptions
	Normal *(default)*	SDI2 cannot be used by Dual Stream 3G SDI video on SDI Input 1.
	Dual Stream	Allows SDI2 to be used by a Dual Stream 3G SDI input present on SDI 1.

The following table shows the selections and their results. In the table, SDI1-1 and SDI1-2 are the two muxed streams entering the SDI1 Input.

4 SDI-3G Detect Setting	5 SDI2 Input Protect Setting	1 Video Input Setting	Resulting Input to Crosspoint Matrix
Dual Video	Dual Stream	SDI1	SDI1-1
		SDI2 (unused)	SDI1-2
	Normal	SDI1	SDI1-1
		SDI2	SDI2
Single Video	Dual Stream	SDI1	SDI1
		SDI2	SDI2
	Normal	SDI1	SDI1
		SDI2	SDI2

6 Fiber1 3G Detect

This parameter configures 3G operation of the Fiber 1 video input. The input can be set for *1080p50/60* (single video), *Dual Stream* 3G SDI (two muxed videos), or *Auto-Detect* whether the input is 1080p50/60 single or Dual Stream 3G video (requires SMPTE Format ID to be present in the SDI Input). See parametr *4 SDI 1 3G Detect* for an illustration and details.

6 Fiber1 3G Format Detect	Selections	Selection Descriptions
	Auto Detect *(default)*	Automatically detects presence of 1080p50/60 or muxed video.
	1080p50/60	Configures the Fiber 1 input for 1080p50/60 video.
	Dual Stream 3G	Configures Fiber 1 for Dual Stream 3G Video (uses SDI1 and SDI2 in Input Crosspoint matrix).

7 Fiber2 Input Protect

This parameter allows you to protect Input Fiber 2 from being taken by a *Dual Stream* selection made in *6 Fiber1 3G Format Detect* setting.

In the *Normal* setting (default), the Fiber 2 video signal always comes from the SDI 2 physical input. Choosing *Dual Stream* video in parameter 6 does not switch away from the physical input.

In the *Dual Stream* setting, the FS2 assumes both channels of Dual Stream 3G video are muxed onto a single wire at the Fiber 1 input. The Fiber 2 video signal is then taken internally from the Fiber 1 Channel 2 signal instead of the Fiber 2 Input connector.

7 Fiber2 Input Protect	Selections	Selection Descriptions
	Normal *(default)*	Fiber 2 cannot be used by Dual Stream 3G SDI video present on Fiber 1.
	Dual Stream	Allows Fiber 2 to be used by a Dual Stream 3G SDI input present on Fiber 1.

8 Genlock Source

This parameter selects the source of reference video used to genlock to, either automatically or explicitly.

8 Genlock Source	Selections	Selection Descriptions
	Reference *(default)*	Use the signal on the *Ref* connector as the genlock source.
	Vid1 Input	Use the *Vid1* input signal as the genlock source.
	Vid2 Input	Use the *Vid1* input signal as the genlock source.
	Free run	Free run mode (FS2 syncs to its own timebase, not locked to an external source).

9 Frame Rates

This parameter selects the HD video frame rate associated with the video standard.

9 Frame Rates	Selections	Selection Descriptions
	59.94/23.98 *(default)*	Select *59.94/23.98* if your desired rate is either 59.94 *or* 23.98.
	50/25	Select *50/25* if your desired rate is either 50 or 25 (PAL).
	60/24	Select *60/24* if your desired rate is either 60 or 24.

Note: Changing the *Frame Rates* selection automatically selects a new value for *2 Output Format*. Each *Frame Rates* selection remembers its own *Output Format* settings.

10 NTSC Standard

This parameter selects the NTSC video standard.

10 NTSC Standard	Selections	Selection Descriptions
	NTSC *(default)*	Select NTSC for North America.
	NTSC Japan	Select NTSC for Japan.

11 Composite Downconv

This parameter selects the type of Downconversion performed on the incoming selected HD source input for the analog *Composite* (NTSC or PAL) video output.

Note: Using the Downconverter adds a frame of video delay and causes the analog *Composite* output to be one frame behind the other outputs.

Also note that this parameter is used only when the Video Processor feeding the Composite output (Output parameter *5 Composite Out*) is producing HD. If that Video Processor is producing SD, the Composite Downconverter is not needed, and the format on the Composite output is the same as seen on the other outputs (controlled by parameter *7 Downconvert Mode* for that Video Processor).

11 Composite Downconv Crop	Selections	Selection Descriptions
	Crop *(default)*	Image is cropped to fit new screen size.
	Anamorphic	HD image is converted to full-screen SD with a 16x9 aspect ratio (anamorphic).
	14x9	Image is reduced slightly with aspect ratio preserved. Black is added top and bottom, and the left and right sides are cropped.
	Auto AFD	Automatically selects the best Downconvert mode based on the input video's Active Format Description (AFD) code. If the input video is not carrying an AFD VANC code, the Downconverter defaults to the mode specified in parameter menu *16.3 Downconvert AFD Default*.
	Letterbox	Image is reduced with black top and bottom added to image area, with the aspect ratio preserved.

12 HDMI RGB Range

This parameter selects the output range for HDMI YCbCr. *Full* allows a range of 0-255 and *SMPTE* limits the range to 16 to 235 (see note for details).

Note: YCbCr luminance (Y) channel data ranges nominally between 16 (black) and 235 (white). Values outside of this range are typically clamped to the valid range. This may cause confusion because JPEG JFIF YCbCr values range between 0 and 255. Mixing these values causes video contrast shifts. You can avoid these shifts if you maintain one range of values throughout your system.

12 HDMI RGB Range	Selections	Selection Descriptions
	Full *(default)*	Selects an HDMI luminance output range of 0-255.
	SMPTE	Selects an HDMI luminance output range of 16-235.

14.0 AES/EBU SRC Mode

This parameter controls the mode of the audio sample rate converters for AES/EBU input audio pairs.

In *Manual* mode, the sample rate converters are enabled manually for each AES pair using parameters 14.1 through 14.8.

In *Auto* mode, the system decides how to handle sample rate conversion. Normal PCM audio passes through the Sample Rate Converters and gets converted, as appropriate. AES channels in which the *non-audio* flag is set in the Channel Status Word are automatically detected and allowed to bypass the Sample Rate Converters; the signal passes unaltered and the existing data is preserved.

14.0 AES/EBU SRC Mode	Selections	Selection Descriptions
	Auto *(default)*	The signal bypasses the Sample Rate Converters for audio channels containing a non-audio flag in the Channel Status Word. If the non-audio flag is not set, the signal passes normally through the Sample Rate Converters.
	Manual	The FS2 determines what to do about audio sample rate conversion on a channel pair-by-pair basis, determined by settings 14.1-14.8. If a channel pair is set to *On,* sample rate conversion is applied to that channel pair. If a channel pair is set to *Bypass*, the FS2 leaves embedded audio as is, bypassing sample rate conversion; this is useful for Dolby® 5.1 embedded audio and other applications where you do not want sample rate conversion to occur.

14.1–14.8 AES/EBU SRC

This group of parameters controls audio sample rate conversion on AES/EBU input audio channel pairs 1/2, 3/4, 5/6, 7/8, 9/10, 11/12, 13/14, and 15/16.

When 14.0 AES/EBU SRC Mode is set to *Auto*, no settings per channel are required; sample rate conversion occurs normally for all channels unless the *non-audio* flag is set in the Channel Status Word, in which case sample rate conversion gets bypassed and the signal is passed through unaltered.

When 14.0 AES/EBU SRC Mode is set to *Manual*, each channel pair can be set manually to *On* or *Bypass*. using parameters 14.1–14.8.

On is the default setting in which audio is rate-converted and synced with video (SRC is applied).

Bypass is available for use when Dolby® 5.1 and similar schemes need to be preserved and the audio data passed unaltered (no SRC is applied).

Set these parameters to *Manual (14.0)*and *Bypass (14.1-14.8)* only if the following are both true:

1. You want to pass unaltered digital encoded audio from either an embedded or AES Input to an embedded and/or AES Output.
2. You have the embedded or AES input genlocked to the FS2 output. In other words, the encoded audio will not survive the frame-sync function (dropping or repeating frames) so it needs to be set to lock to the input. You can lock to a reference only if

that reference is driving both the FS2 and the upstream source of the embedded or AES input to the FS2.

14.1-14.8 AES/EBU SRC	Selections	Selection Descriptions
	On *(default)*	Audio sample rate conversion (SRC) is applied to the affected channel pairs and keeps the video and audio synchronized.
	Bypass	Audio sample rate conversion (SRC) is *NOT* applied to the affected channel pairs. The signal is passed through unaltered, which is useful for preserving Dolby® 5.1 embedded audio and other applications where existing data on the input must be preserved and passed to the output.

15 Dolby Decoder Input

This menu selects the audio input pair used to feed compressed data to the Dolby Audio Decoder (option).

15 Dolby Decoder Input	Selections	Selection Descriptions		
	Input Pair	AES Ch1/2	SDI 2 Ch1/2	Fiber 2 Ch1/2
		AES Ch3/4	SDI 2 Ch3/4	Fiber 2 Ch3/4
		AES Ch5/6	SDI 2 Ch5/6	Fiber 2 Ch5/6
		AES Ch7/8	SDI 2 Ch7/8	Fiber 2 Ch7/8
		AES Ch9/10	SDI 2 Ch9/10	Fiber 2 Ch9/10
		AES Ch11/12	SDI 2 Ch11/12	Fiber 2 Ch11/12
		AES Ch13/14	SDI 2 Ch13/14	Fiber 2 Ch13/14
		AES Ch15/16	SDI 2 Ch15/16	Fiber 2 Ch15/16
		SDI 1 Ch1/2	Fiber 1 Ch1/2	
		SDI 1 Ch3/4	Fiber 1 Ch3/4	
		SDI 1 Ch5/6	Fiber 1 Ch5/6	
		SDI 1 Ch7/8	Fiber 1 Ch7/8	
		SDI 1 Ch9/10	Fiber 1 Ch9/10	
		SDI 1 Ch11/12	Fiber 1 Ch11/12	
		SDI 1 Ch13/14	Fiber 1 Ch13/14	
		SDI 1 Ch15/16	Fiber 1 Ch15/16	

16 Dolby Decoder Mode

This parameter determines the Dolby Decoder "Bitstream Detect Mode" on the Dolby Decoder Card. In Auto mode, the Dolby Decoder decodes Dolby E, Dolby Digital, or Dolby DigitalPlus bitstreams. If none of the above are detected, the card passes the incoming audio as PCM.

In Dolby E mode, the Dolby Decoder only decodes Dolby E bitstreams, and mutes its outputs if it detects anything else.

In Dolby D mode, the Dolby Decoder only decodes Dolby Digital or Dolby DigitalPlus bitstreams, and mutes its outputs if it detects anything else.

16 Dolby Decoder Mode	Selections	Selection Descriptions
	Auto *(default)*	Automatically decode Dolby E, Dolby digital, Dolby DigitalPlus, or PCM.
	Dolby E	Decode Dolby E only.
	Dolby D	Decode Dolby Digital or Dolby DigitalPlus only.

17 Dolby Decoder Aux Out

The Dolby Decoder outputs eight channels of decoded audio, plus an additional Aux output which is a 2-channel (stereo) mixdown of one of the selected Dolby Programs (1-8). This parameter determines which of the Programs is used for the Aux mixdown.

In this context, *Program* is not the same as a physical input channel. To Dolby, a Program is a related set of audio channels. For example, a 5.1 audio source requires 6 channels and is considered one Program. Consequently, there may be a varying number of Programs available on a given Dolby E bitstream. It is possible to have up to eight Programs on a single bitstream if eight discrete mono channels were encoded.

17 Dolby Decoder Aux Out	Selections	Selection Descriptions
	Program 1 (default)	Set the Dolby Aux Output to a mixdown of Program 1
	Program 2	Set the Dolby Aux Output to a mixdown of Program 2
	Program 3	Set the Dolby Aux Output to a mixdown of Program 3
	Program 4	Set the Dolby Aux Output to a mixdown of Program 4
	Program 5	Set the Dolby Aux Output to a mixdown of Program 5
	Program 6	Set the Dolby Aux Output to a mixdown of Program 6
	Program 7	Set the Dolby Aux Output to a mixdown of Program 7
	Program 8	Set the Dolby Aux Output to a mixdown of Program 8

18 Dolby Decoder Aux Mode

The Dolby Decoder outputs eight channels of decoded audio, plus an additional Aux output which is a 2-channel (stereo) mixdown of one of the selected Dolby Programs. This parameter determines how the Aux mixdown is produced. Lt/Rt produces a stereo mixdown which takes rear surround channels into account (when available).

Selecting *Lo/Ro* produces a stereo mixdown using only the front channels, *Mono* produces a mono mixdown, and *Mute* produces full quality, high fidelity silence.

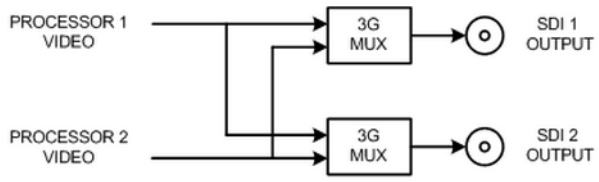
18 Dolby Decoder Aux Mode	Selections	Selection Descriptions
	Lt/Rt	Produces an Aux stereo mixdown including the rear surround channels.
	Lo/Ro	Produces an Aux stereo mixdown using only the front channels.
	Mono	Produces an Aux mono mixdown.
	Mute	Produces full quality high fidelity silence.

OUTPUT Menu Group

This menu group selects the video and audio outputs that are routed to the rear panel connectors.

1.1 SDI1 Video Output

This parameter selects which video processor output is sent out the *SDI 1* output. The default is to send the output of Processor 1 to SDI1 Out. The *Proc1+Proc2* selection multiplexes two separate 1.5 Gb HD video signals from both video processor outputs into a Dual Stream 3G SDI (muxed) output as illustrated below. This selection will only make valid video if both video processors are set to output the same HD video format and that format is not 1080p50/60.



Dual Stream 3G Output

1.1 SDI1 Video Out	Selections	Selection Descriptions
	Processor1 *(default)* Processor2 Proc1+Proc2	Sends the output of Processor 1 to the SDI1 output. Sends the output of Processor 2 to the SDI1 output. Sends multiplexed Proc1 & 2 to the SDI1 output (Dua Stream 3G).

1.2 SDI2 Video Out

This parameter selects which video processor output is sent to the *SDI2* output. The default is to send the output of Processor2 to SDI2 Out. The *Proc1+Proc2* selection multiplexes two separate 1.5 Gb HD video signals from both video processor outputs into a Dual Stream 3G SDI (muxed) output. This selection will only produce valid video if both video processors are set to output the same HD video format and that format is not 1080p50/60. See *1.1 SDI1 Video Output* for an illustration.

1.2 SDI2 Video Out	Selections	Selection Descriptions
	Processor1 Processor2 *(default)* Proc1+Proc2	Sends the output of Processor 1 to the SDI2 output. Sends the output of Processor 2 to the SDI2 output. Sends multiplexed Proc 1 & 2 to the SDI2 output (Dual Stream 3G).

2.1 Fiber1 Video Out

This parameter selects which video processor output is sent to the optional *Fiber1* output. The default is to send the output of Processor 1 to Fiber1 Out. The *Proc1+Proc2* selection multiplexes two separate 1.5 Gb HD video signals from both video processor outputs into a Dual Stream 3G SDI (muxed) output. This selection produces valid video only if both video processors are set to the same HD video output format (but not 1080p50/60). See *1.1 SDI1 Video Output* for an illustration.

2.1 Fiber1 Video Out	Selections	Selection Descriptions
	Processor1 *(default)*	Sends the output of Processor 1 to the Fiber1 output.
	Processor2	Sends the output of Processor 2 to the Fiber1 output.
	Proc1+Proc2	Sends multiplexed Proc 1 & 2 to the Fiber1 output (Dual Stream 3G).

2.2 Fiber2 Video Out

This parameter selects which video processor output is sent to the optional *Fiber2* output. The default is to send the output of Processor 2 to the Fiber2 Output. The *Proc1+Proc2* selection multiplexes two separate 1.5 Gb HD video signals from both video processor outputs into a Dual Stream 3G SDI (muxed) output. This selection will only produce valid video if both video processors are set to output the same HD video format and that format is not 1080p50/60. See *1.1 SDI1 Video Output* for an illustration.

2.2 Fiber2 Video Out	Selections	Selection Descriptions
	Processor1	Sends the output of Processor 1 to the Fiber2 output.
	Processor2 *(default)*	Sends the output of Processor 2 to the Fiber2 output.
	Proc1+Proc2	Sends multiplexed Proc 1 & 2 to the Fiber2 output (Dual Stream 3G).

3 HDMI Video Out

This parameter selects which video processor output is sent to the *HDMI* output.

3 HDMI Video Out	Selections	Selection Descriptions
	Processor1 *(default)*	Sends the output of Processor 1 to the HDMI output.
	Processor2	Sends the output of Processor 2 to the HDMI output.

4 Component Out

This parameter selects the video processor output to be sent out the *Component* analog output.

4 Component Out	Selections	Selection Descriptions
	Processor1 *(default)*	Sends the output of Processor 1 to the Component output.
	Processor2	Sends the output of Processor 2 to the Component output.

5 Composite Out This parameter selects the video processor output to be sent out the *Composite* analog output. If an HD output is sent to the Composite Output, a separate Downconverter dedicated to the Composite Output will provide an SD output.

5 Composite Out	Selections	Selection Descriptions
	Processor1 *(default)*	Sends the output of Processor 1 to the Composite output.
	Processor2	Sends the output of Processor 2 to the Composite output.

6 HDMI Audio Out This parameter selects which audio processor output channels (1–8 or 9–16) are embedded in the *HDMI* output. The Audio Processor associated with the selected Video Processor for the HDMI output is used as the audio source (Video Proc 1 = Audio Proc 1, Video Proc 2 = Audio Proc 2); this parameter selects which channels of that source are embedded.

6 HDMI Audio Out	Selections	Selection Descriptions
	Channels 1-8 *(default)*	Selects audio channels 1-8 to embed in the HDMI output.
	Channels 9-16	Selects audio channels 9-16 to embed in the HDMI output.

7 AES/EBU Audio Out This parameter selects the audio processor output to be sent out the *AES/EBU* digital audio output.

7 AES/EBU Audio Out	Selections	Selection Descriptions
	Processor1 *(default)*	Selects Audio Processor 1 output to send to the AES/EBU output.
	Processor2	Selects Audio Processor 2 output to send to the AES/EBU output.

8 Analog Audio Out This parameter selects which group of channels (1–8 or 9–16) from which audio processor output (1 or 2) will be sent to the *Analog Audio* output.

8 Analog Audio Out	Selections	Selection Descriptions
	Audio1 Ch1-8 *(default)*	Sends Audio Proc1 output Ch1-8 to the Analog Audio output.
	Audio1 Ch9-16	Sends Audio Proc1 output Ch9-16 to the Analog Audio output.
	Audio2 Ch1-8	Sends Audio Proc2 output Ch1-8 to the Analog Audio output.
	Audio2 Ch9-16	Sends Audio Proc2 output Ch9-16 to the Analog Audio output.

9.1 SDI1 3G Config

The *SDI13G Config* parameter determines how 1080p50/60 signals are formatted for the SDI 1 output. The first two choices select either "Level A" or "Level B" as described in the SMPTE 425 standard. The third selection ties SDI 1 Out and SDI 2 Out together into a single 1.5 Gb Dual-link 1080p50/60 output. In this case, the SDI2 Video Out and SDI2 Audio Out selections are ignored.

9.1 SDI1 3G Config	Selections	Selection Descriptions
	3 Gb-Level A *(default)*	Formats 3G SDI Output as Level A.
	3 Gb Level-B	Formats 3G SDI Output as Level B.
	1.5 Gb Dual Link	Formats SDI 1 and SDI 2 as 1.5Gb "Dual Link."

9.2 SDI2 3G Config

The *SDI2 3G Config* parameter determines how 1080p50/60 signals are formatted for the SDI 2 output. The two choices select either "Level A" or "Level B" as described in the SMPTE 425 standard. (If the SDI1 selection is *Dual Link*, these SDI2 settings are ignored because the SDI 2 output is used for dual link.)

9.2 SDI2 3G Config	Selections	Selection Descriptions
	3 Gb-Level A *(default)*	Formats 3G SDI Output as Level A.
	3 Gb-Level B	Formats 3G SDI Output as Level B.

10.1 Fiber1 3G Config

The *Fiber1 3G Config* parameter determines how 1080p50/60 signals are formatted for the Fiber 1 output. The first two choices select either "Level A" or "Level B" as described in the SMPTE 425 standard. The third selection ties Fiber 1 Out and Fiber 2 Out together into a single 1.5 Gb Dual-link 1080p50/60output. In this case, the Fiber2 Video Out and Fiber2 Audio Out selections are ignored.

10.1 Fiber1 3G Config	Selections	Selection Descriptions
	3 Gb-A *(default)*	Sends 3 Gb format A 1080p 50/60 to the Fiber1 output.
	3 Gb-B	Sends 3 Gb format B 1080p 50/60 to the Fiber1 output.
	1.5 Gb Dual Link	Sends dual-link 1.5 Gb 1080p 50/60 to the Fiber1 and Fiber2 outputs. As the term "dual-link" implies, the signals and outputs are tied together.

10.2 Fiber2 3G Config

The *Fiber2 3G Config* parameter determines how 1080p50/60 signals are formatted for the Fiber 2 output. The two choices select either "Level A" or "Level B" as described in the SMPTE 425 standard. (If the Fiber1 selection is *Dual Link*, these Fiber2 settings are ignored because the Fiber 2 output is used for dual link.)

10.2 Fiber2 3G Config	Selections	Selection Descriptions
	3 Gb-Level A *(default)*	Formats 3G SDI Output as Level A.
	3 Gb-Level B	Formats 3G SDI Output as Level B.

VIDEO 1 and VIDEO 2 Menu Groups

The following descriptions explain the Video 1 and 2 Menu Groups. Because the selections for the video processors are identical, both are described here.

1 Video Input

This parameter performs input video source selection for the selected Video Processor (1 or 2). Multiple input sources are available at the connectors on the FS2 rear panel, but the active input source routed to the selected Video Processor is the one you select here.

1 Video Input	Selections	Selection Descriptions
	SDI1 *(default)*	Select SDI1 as the input source.
	SDI2	Select SDI2 as the input source.
	SDI DualLink	Select SDI DualLink mode, linking both SDI inputs as the input source.
	Fiber1	Select Fiber1 as the input source.
	Fiber2	Select Fiber2 as the input source.
	Fiber DualLink	Select Fiber DualLink mode, linking both Fiber inputs as the input sources.
	HDMI	Select the HDMI input as the input source.
	Composite	Select Composite as the input source.
	Component	Select Component as the input source.

Notes:

1. **Source Memory**—Changing the *Video Input* selection automatically selects new values for Proc Amp parameters (11.1 through 11.4) and Color Corrector (RGB) parameters (12.0 through 12.9). Each video source remembers its own Proc Amp and Color Corrector settings. This is referred to as Source Memory.
2. **Audio Source Memory**—If *AUDIO 3 Audio Follow Video* is set to *On*, changing the *Video Input* selection will also automatically select new values for all audio parameters associated with *Audio Follow Video* (see the list provided in the description of parameter *AUDIO 3 Audio Follow Video*). Audio Source Memory is enabled only when *AUDIO 3 Audio Follow Video* is set to *On*.
3. **Dual Link**—Dual Link referred to here is 1080p50/59.94 on two 1.5 Gb HD-SDI connections. Selecting *Dual Link* as the Video Input for Video Processor 1 or 2 will allocate both SDI Inputs for Dual Link use. Both Processors can use the Dual Link Input, or if only one Processor is using it, the other Processor is free to select another input. The Fiber inputs operate the same way.

2 Output Format This parameter defines the output format of the Video Processor (1 or 2). Available choices depend on the frame rate selection. The frame rate is set by the *Frame Rates* parameter (*System* menu 9).

2 Output Format	Selections	Selection Descriptions
	Follow INPUT *(default)*	Follow the format of the selected input.
	Follow REF	Follow the format of the reference input (Ref).
	525/625<frame rate>	Select 525/625 SD as the Video Processor output.
	720p<frame rate>	Select 720p HD as the Video Processor output.
	1080i<frame rate>	Select 1080i HD as the Video Processor output.
	1080PsF<frame rate>	Select 1080PsF HD as the Video Processor output.
	1080p<frame rate>	Select 1080p HD as the Video Processor output.
	2K1080p<frame rate>	Select 2K1080p HD as the Video Processor output.

Notes:

1. **Output Format Selection Constraint**—Available frame rates depend on *System 9 Frame Rates* parameter setting.
2. **Output Follow Ref Exception**—If the parameter *2 Output Format* is set to *Follow Ref*, and the *8 Genlock Source* is set to *Input*, and the *1 Video Input* is set to select one of the analog inputs, the output format will follow the input format rather than the format of the signal on the *Ref BNC* as might be expected. (This combination of settings effectively disconnects the *Ref BNC*.)
3. **Output Timing Memory**—Changing the *Output Format* selection automatically selects new values for H & V timing parameters (*14.1 Output Timing H*, *14.2 Output Timing V* and *14.3 Analog Output Fine*). Each Output Format mode remembers its own H and V timing settings.
4. **Output Format Mapping**—The *Output Format* selection is remembered for each of the frame rates. If you change the frame rate selection, the Output Format associated with the newly selected frame rate is recalled.

3 Video Output Mode The parameter sets the final video output of the Video Processor to normal video or the test pattern generator. Alarms occur if conflicting video formats are selected.

3 Video Output Mode	Selections	Selection Descriptions
	Normal *(default)*	Normal video output from the processors.
	Test Pattern	The output of the test pattern generator.

4 Background Fill

This parameter selects the background source used to fill any part of the processor output raster not filled with video from the main input video. For the Video Processor 1 menu, the second selection is *Video 2*. For the Video Processor 2 menu, the second selection is Video 1. Using this feature, you can key *Video 2* into *Video 1* or vice versa.

4 Background Fill	Selections	Selection Descriptions
	Black (*default*) Video 1/2 Matte	Selects black as the background fill video. Selects Vid1 or Vid2 as the background fill video. Selects matte as the background fill video.

5 Loss of Input

This parameter selects the automatic action that occurs if the video input is lost. The *Black* selection (default) cuts the video to black. The *Freeze* selection freezes video on the last available good frame.

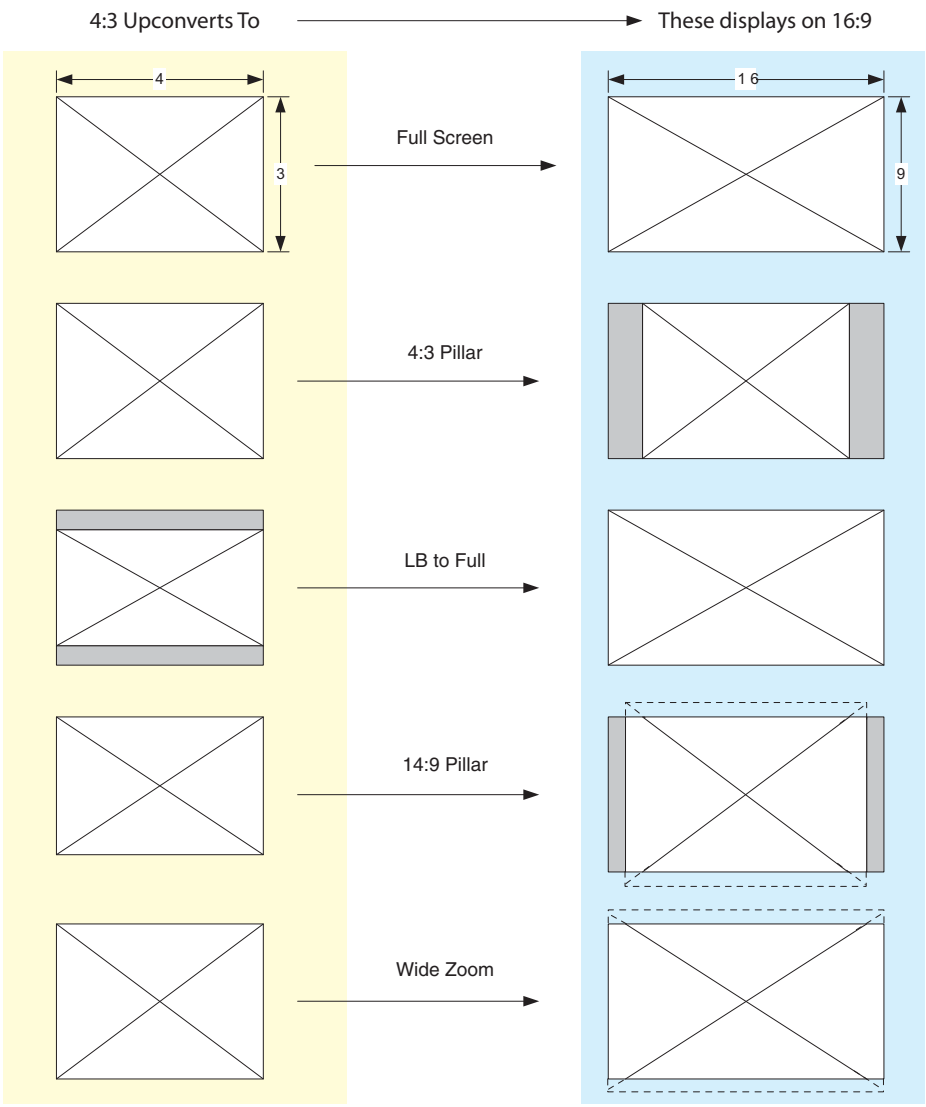
5 Loss of Input	Selections	Selection Descriptions
	Black (*default*) Freeze	Switches to black if input video is lost. Freezes on the last available good video frame if input is lost.

6 Upconvert Mode

This parameter selects the type of Upconversion the Video Processor performs on the selected SD source input. This parameter is in effect only when the input is SD (525i or 625i) and the selected output format is HD (720p, 1080i, or 1080p), or when the input is HD (720p, 1080i, or 1080p) and the output is 2K (2048 x 1080). When upconverting to 2K, the selections do not precisely describe the resulting picture. For example, 4x3 pillar is not precisely 4x3, and 14x9 is not precisely 14x9. However, picture scaling is such that the visual effect closely resembles an SD-to-HD upconvert.

6 Upconvert Mode	Selections	Selection Descriptions
	4x3 Pillar 14x9 Pillar *(default)* Full Screen LB to Full Wide Zoom	Results in 4x3 image at center screen with black sidebars. Results in 14x9 image, zoomed slightly to fill a 14x9 image with black sidebars. Anamorphic full screen display. Image is zoomed to fit the full screen (letterbox). Using a combination of zoom and stretch, the image is sized to fit a 16x9 screen (this can introduce a small aspect ratio change).

Upconvert Illustrations



7 Downconvert Mode

This parameter selects the type of Downconversion performed by the Video Processor on the selected HD source input. See the following Downconvert Illustrations for Downconversion examples. This parameter is in effect only when the input is HD (720p, 1080i, or 1080p) and the output format is SD (525i or 625i), or when the input is 2K (2048 x 1080)and the output is HD (720p, 1080i, or 1080p). When downconverting from 2K, the selections do not precisely describe the resulting picture. For example, 14x9 is not precisely 14x9. However, picture scaling is such that the visual effect closely resembles an HD-to-SD downconvert.

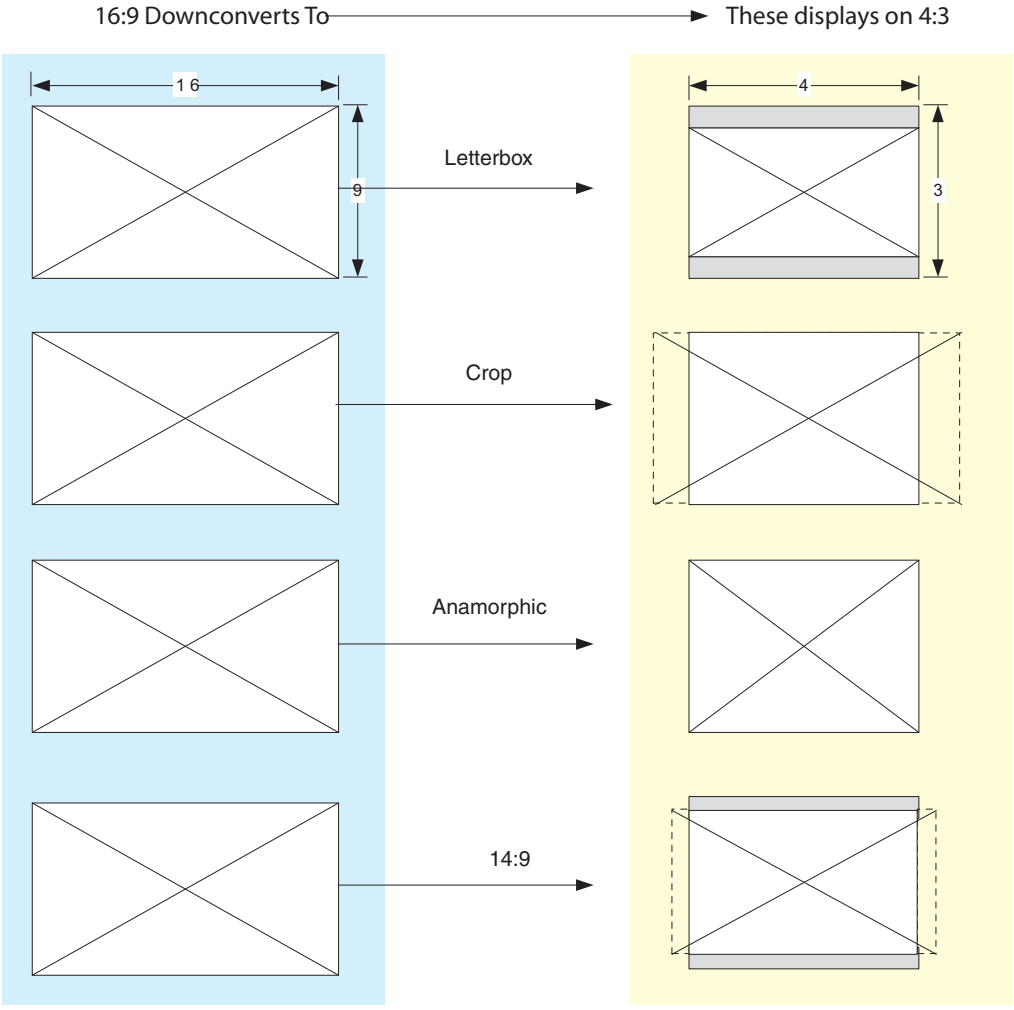
7 Downconvert Mode	**Selections**	**Selection Descriptions**
	Crop *(default)*	Image is cropped to fit new screen size.
	Anamorphic	HD image is converted to full-screen SD with a 16x9 aspect ratio (anamorphic).
	14:9	Image is reduced slightly with aspect ratio preserved. Black is added top and bottom, and the left and right sides are cropped.
	Auto AFD	Automatically selects the best Downconvert mode based on the input video's Active Format Description (AFD) code. If the input video is not carrying an AFD VANC code, the Downconverter defaults to the mode specified in parameter menu *16.3 Downconvert AFD Default*.
	Letterbox	Image is reduced with black top and bottom added to image area, with the aspect ratio preserved.

Note: Active Format Description (AFD) codes are carried in the vertical ancillary (VANC) portion of HD SDI video signals, specified in SMPTE 2016 as follows: "AFD information is intended to guide DTV receivers and/or intermediate professional video equipment regarding the display of video of one aspect ratio on a display of another aspect ratio."

In the FS2 Downconverter, the AFD code on the video input can be used to guide the Downconverter in choosing which mode to use to best display the important content of the input 16:9 HD video on the 4:3 SD output. For example, if the input AFD code is 10 (Full Frame), it means that the input video has important picture information throughout the full 16:9 frame, so the Downconverter should use Letterbox mode to be sure none of the content is cropped off. An AFD code of 9 (Pillarbox) says that the input video only has content within the center 4:3 area of the picture (usually because it originally came from an Upconverted SD signal) so the Downconverter Crop mode would be the best choice. There are 16 possible HD AFD codes, of which 8 are in common use. The FS2 does not process or use SD AFD codes.

FS2 AFD processing (passing, removing, and re-inserting) occurs based on the setting of parameters *7*, *5.4*, *16.1*, and *16.2*.

Downconvert Illustrations

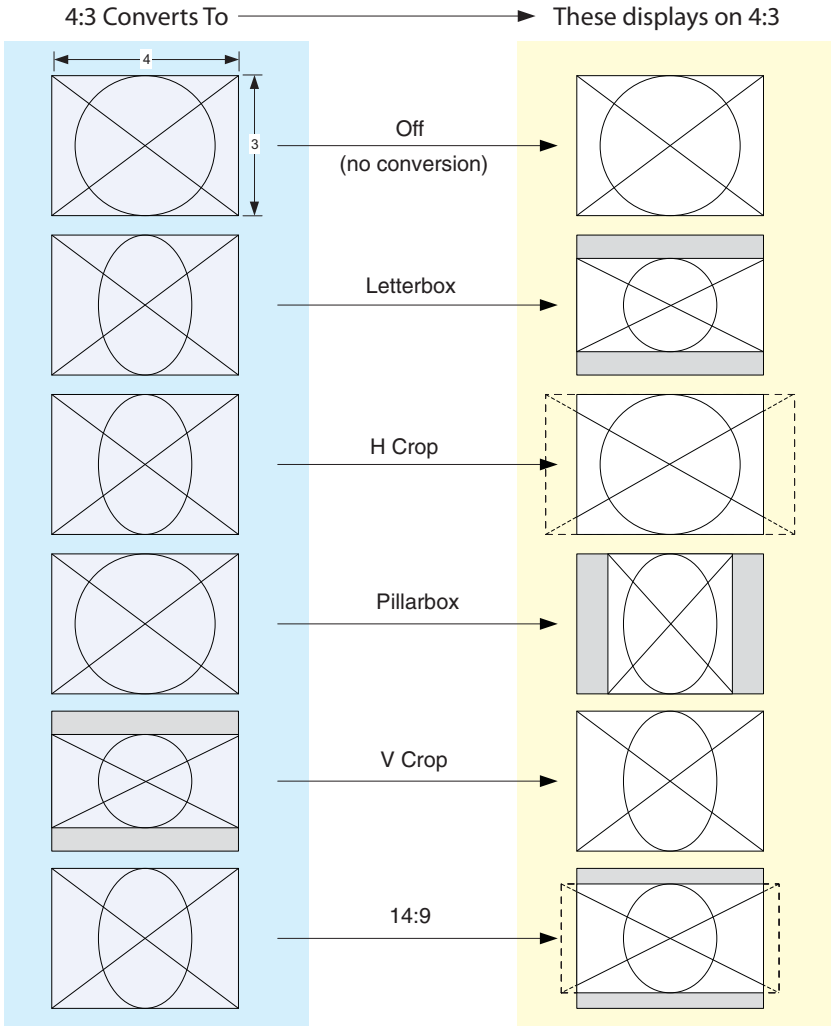


8 SD Aspect Ratio Convert

This parameter selects the type of SD-to-SD Aspect Ratio Conversion (ARC) performed on an incoming selected SD source. This parameter is in effect only when the input and output are both SD (525i or 625i). (In Europe 16:9 anamorphic video is also known as "wide screen" video.)

8 SD Aspect Ratio Convert	Selections	Selection Descriptions
	Off *(default)*	Turns aspect ratio conversion *Off*.
	Letterbox	Converts 16:9 Anamorphic video to Letterbox video.
	H Crop	Converts 16:9 Anamorphic video to 4:3 Standard video (crops left and right edges of video).
	Pillarbox	Converts 4:3 Standard video to 16:9 Anamorphic video.
	V Crop	Converts Letterbox video to 16:9 Anamorphic video.
	14:9	Converts 16:9 Anamorphic video to 14:9 Cropped video.

SD Aspect Ratio Conversion Illustrations



9 Sidebar Edge The parameter, which is hidden if *3 Video Output* is not set to *Sidebars*, adjusts the sidebar position where the center video meets the pillarbox background video on both sides. The underlying hardware feature is the same as *Custom Right Crop* and *Custom Left Crop*. This is effectively an extra handle on the *Left Crop* and *Right Crop* parameters.

The *Crop* and *Sidebar Edge* controls are additive; increasing Sidebar Edge (making the sidebars larger and the center-video smaller), equates to setting *Left* and *Right Crop* values to smaller percentages. The *Sidebar Edge* can be set to *0 through +128*. A value of *0* produces a 4:3 center. Positive values produce wider sidebars (and a narrower center).

9 Sidebar Edge	Selections	Selection Descriptions
	0 *(default)* 0 to +128 (Variable)	Defaults to 0. Using the *ADJUST* knob, step through and select a width value from 0 through +128 to expand or shrink the sidebars, which are filled with Background video (*4 Background Fill)*. Selecting a larger value causes the center picture to become narrower while the sidebars expand.

10.1 Matte Luma This parameter determines the Matte Luma level of the background fill.

10.1 Matte Luma	Selections	Selection Descriptions
	50% (*default*) 0–100% (Variable)	Sets the matte luminance level to the default 50% value. Sets the matte luminance level from 0–100%.

10.2 Matte Chroma This parameter determines the Matte Chroma level of the background fill.

10.2 Matte Chroma	Selections	Selection Descriptions
	50% (*default*) 0–100% (Variable)	Sets the matte chrominance level to the default 50% value. Sets the matte chrominance level from 0–100%.

10.3 Matte Hue This parameter determines the Matte Hue of the background fill.

10.3 Matte Hue	Selections	Selection Descriptions
	0 degrees (*default*) 0–359 degrees (Variable)	Sets the matte hue to the default 0 degrees (red). Sets the matte hue to a value between 0 and 359 degrees. As you turn the ADJUST knob, it wraps from 359 back to 0 degrees.

11.0 Proc Amp (YUV)

This parameter turns the Proc Amp *On* and *Off* for signals composed of YUV components. When it is *On*, you can set additional parameters (*11.1* to *11.4*) to control video *Gain*, *Black Level*, *Hue*, and *Saturation*. Proc Amp parameter settings are independently kept for each separate input: *SDI 1*, *SDI 2*, *Fiber 1*, *Fiber 2*, *Composite*, *HDMI*, and *Component*.

Note: Source Memory—Independent analog output timing values are kept for all available output formats.

11.0 Proc Amp (YUV)	Selections	Selection Descriptions
	Off (*default*) On	Sets the YUV Proc Amp to Off. Sets the YUV Proc Amp to On.

11.1 Proc Amp Gain

This parameter adjusts the video gain from 0 to 1.5 times luma in steps of .01, using the *ADJUST* knob.

11.1 Proc Amp Gain	Selections	Selection Descriptions
	Variable	Adjusts Proc Amp Gain from zero to 1.5 in .01 steps. *Default (unity):* 1.0

11.2 Proc Amp Black

This parameter adjusts the video black level from -20 IRE to +20 IRE in 0.5 steps, using the *ADJUST* knob.

11.2 Proc Amp Black	Selections	Selection Descriptions
	Variable	Adjusts Proc Amp Black level from -20 IRE to +20 IRE in 0.5 steps. *Default (unity):* 0 IRE

11.3 Proc Amp Hue

This parameter adjusts the video color hue through 360 degrees (color wheel). Steps increment or decrement 1 degree using the *ADJUST* knob.

11.3 Proc Amp Hue	Selections	Selection Descriptions
	Variable	Adjusts Proc Amp Hue from -179 to +180 in steps of 1 degree. *Default (unity):* 0 degrees

11.4 Proc Amp Sat

This parameter adjusts the video color saturation from black and white to 1.5 times chroma in steps of .01, using the *ADJUST* knob.

11.4 Proc Amp Sat	Selections	Selection Descriptions
	Variable	Adjusts Proc Amp Saturation from 0 (black & white) to 1.5 (Chroma) in steps of 0.01. *Default:* 1.0

12.0 Color Corrector (RGB)

This parameter turns the RGB Color Corrector *On* and *Off*. When it is *On*, you can set additional parameters (*12.1* to *12.9*) to control video *Gain*, *Black Level*, and *Gamma*. When set to *Off*, all RGB Color Corrector settings are programmed for unity (or bypass).

Note: Source Memory—RGB Color Corrector values are independently kept for each separate input: *SDI 1*, *SDI 2*, *Fiber 1*, *Fiber 2*, *Composite*, *HDMI*, and *Component*.

12.0 Color Corrector (RGB)	Selections	Selection Descriptions
	Off (*default*) On	Sets the RGB Color Corrector to Off. Sets the RGB Color Corrector to On, enbling parameters 12.1-12.9.

12.1 Color Red Gain

This parameter adjusts the *RGB Red Gain* from zero to 1.5 times in 0.01 increments.

12.1 Color Red Gain	Selections	Selection Descriptions
	Variable	Adjusts Red Gain from zero to 1.5 in 0.01 steps. *Default (unity):* 1.0

12.2 Color Red Black Level

This parameter adjusts the *RGB Red Black* level from -20 IRE to +20 IRE in 0.5 steps, using the *ADJUST* knob.

12.2 Color Red Black	Selections	Selection Descriptions
	Variable	Adjusts Red Black level from -20 IRE to +20 IRE in 0.5 steps. *Default (unity):* 0 IRE

12.3 Color Red Gamma

This parameter adjusts the *RGB Red Gamma* by a factor of -1.0 to +1.0 in steps of 0.05, using the *ADJUST* knob.

12.3 Color Red Gamma	Selections	Selection Descriptions
	Variable	Adjusts Red Gamma level from -1 to +1.0 in 0.05 steps. *Default (unity):* 0

12.4 Color Green Gain This parameter adjusts the *RGB Green Gain* from zero to 1.5 times in 0.01 increments using the *ADJUST* knob.

12.4 Color Green Gain	Selections	Selection Descriptions
	Variable	Adjusts Green Gain from zero to 1.5 in 0.01 steps. *Default (unity):* 1.0

12.5 Color Green Black Level This parameter adjusts the *RGB Green Black* level from -10 IRE to +20 IRE in 0.5 steps, using the *ADJUST* knob.

12.5 Color Green Black Level	Selections	Selection Descriptions
	Variable	Adjusts Red Black level from -20 IRE to +20 IRE in 0.5 steps. *Default (unity):* 0 IRE

12.6 Color Green Gamma This parameter adjusts the *RGB Green Gamma* by a factor of -1.0 to +1.0 in steps of 0.05, using the *ADJUST* knob.

12.6 Color Green Gamma	Selections	Selection Descriptions
	Variable	Adjusts Red Gamma level from -1 to +1.0 in 0.05 steps. *Default (unity):* 0

12.7 Color Blue Gain This parameter adjusts the *RGB Blue Gain* from zero to 1.5 times in 0.01 increments using the *ADJUST* knob.

12.7 Color Blue Gain	Selections	Selection Descriptions
	Variable	Adjusts Blue Gain from zero to 1.5 in 0.01 steps. *Default (unity):* 1.0

12.8 Color Blue Black Level This parameter adjusts the *RGB Blue Black* level from -10 IRE to +20 IRE, using the *ADJUST* knob.

12.8 Color Blue Black Level	Selections	Selection Descriptions
	Variable	Adjusts Blue Black level from -20 IRE to +20 IRE in 0.5 steps. *Default (unity):* 0 IRE

12.9 Color Blue Gamma

This parameter adjusts the *RGB Blue Gamma* by a factor of -1.0 to +1.0 in steps of 0.05, using the *ADJUST* knob.

12.9 Color Blue Gamma Level	Selections	Selection Descriptions
	Variable	Adjusts Blue Gamma level from -1 to +1.0 in 0.05 steps. *Default (unity):* 0

13.0 Custom Size/Pos

This parameter turns custom image settings 13.1–13.8 *On* or *Off*. The custom settings determine the image size and shape for Upconvert and Downconvert modes *6* and *7* if you choose the *Custom* selection for those modes.

The *Custom* controls *13.1–13.8* are only displayed when *Custom Size/Pos* is *On*. When *Custom Size/Pos* is *Off*, parameters *13.1–13.8* are skipped in the menu system, and the UFC hardware is programmed for unity.

13.0 Custom Size/Pos	Selections	Selection Descriptions
	Off *(default)* On	Sets this parameter and related custom size/pos parameters to off. Enables this parameter and related custom size/position parameters.

13.1 Custom Size

This parameter changes the H and V size of the output picture by the specified percentage (%) while maintaining the current aspect ratio. If *Custom Size/Pos* is *On* and this parameter is not unity (100%) for the current mode, the front panel UFC LED lights.

13.1 Custom Size	Selections	Selection Descriptions
	100% *(default)* 10% to 200%	Maintains 100% picture size for the selected format. Enables changing the picture size using the ADJUST knob.

Custom Size is stored separately for each Conversion Mode. Values for each of the Upconvert modes, Downconvert modes (excluding AFD), and SD Aspect Ratio modes (excluding OFF), plus no conversion (or HD CrossConvert), are independently stored (per Vid Proc).

13.2 Custom Aspect

This parameter changes the H/V aspect ratio of the output picture while maintaining the current V size (Aspect < 0) or H size (Aspect > 0). If *Custom Size/Pos* is *On* and this parameter is not unity (0) for the current mode, the front panel UFC LED lights.

13.2 Custom Aspect	Selections	Selection Descriptions
	0.000 *(default)* -0.500 to +0.500	Maintains the normal 100% aspect ratio for the selected format. Enables changing the aspect ratio using the ADJUST knob.

Custom Aspect is stored separately for each Conversion Mode. Values for each of the Upconvert modes, Downconvert modes (excluding AFD), and SD Aspect Ratio modes (excluding OFF), plus no conversion (or HD CrossConvert), are independently stored (per Vid Proc).

13.3 Custom H Position

This parameter changes the H position of the output picture. If *Custom Size/Pos* is *On* and this parameter is not unity (0%) for the current mode, the front panel UFC LED lights.

13.3 Custom H Position	Selections	Selection Descriptions
	0% *(default)* -100% to +100%	Maintains the normal horizontal position of the selected format. Enables changing the horizontal position using the ADJUST knob.

Custom H Position is stored separately for each Conversion Mode. Values for each of the Upconvert modes, Downconvert modes (excluding AFD), and SD Aspect Ratio modes (excluding OFF), plus no conversion (or HD CrossConvert), are independently stored (per Vid Proc).

13.4 Custom V Position

This parameter changes the V position of the output picture. If *Custom Size/Pos* is *On* and this parameter is not unity (0%) for the current mode, the front panel UFC LED lights.

13.4 Custom V Position	Selections	Selection Descriptions
	0% *(default)* -100% to +100%	Maintains the normal 100% vertical position of the selected format. Enables changing the vertical position using the ADJUST knob.

Custom V Position is stored separately for each Conversion Mode. Values for each of the Upconvert modes, Downconvert modes (excluding AFD), and SD Aspect Ratio modes (excluding OFF), plus no conversion (or HD CrossConvert), are independently stored (per Vid Proc).

13.5 Custom Left Crop

This parameter changes the Left picture crop position. If *Custom Size/Pos* is *On* and this parameter is not unity (100%) for the current mode, the front panel UFC LED lights.

13.5 Custom Left Crop	Selections	Selection Descriptions
	100% *(default)* +10.0% to +100.0%	Maintains the normal left side position of the selected format. Enables changing the left side position using the ADJUST knob.

Custom Left Crop is stored separately for each Conversion Mode. Values for each of the Upconvert modes, Downconvert modes (excluding AFD), and SD Aspect Ratio

modes (excluding OFF), plus no conversion (or HD CrossConvert), are independently stored (per Vid Proc).

13.6 Custom Right Crop

This parameter changes the Right picture crop position. If *Custom Size/Pos* is *On* and this parameter is not unity (100%) for the current mode, the front panel UFC LED lights.

13.6 Custom Right Crop	Selections	Selection Descriptions
	100% *(default)* +10.0% to +100.0%	Maintains the normal right side position of the selected format. Enables changing the right side position using the ADJUST knob.

Custom Right Crop is stored separately for each Conversion Mode. Values for each of the Upconvert modes, Downconvert modes (excluding AFD), and SD Aspect Ratio modes (excluding OFF), plus no conversion (or HD CrossConvert), are independently stored (per Vid Proc).

13.7 Custom Top Crop

This parameter changes the Top picture crop position. If *Custom Size/Pos* is *On* and this parameter is not unity (100%) for the current mode, the front panel UFC LED lights.

13.7 Custom Top Crop	Selections	Selection Descriptions
	100% *(default)* +10.0% to +100.0%	Maintains the normal top position of the selected format. Enables changing the top position using the ADJUST knob.

Custom Top Crop is stored separately for each Conversion Mode. Values for each of the Upconvert modes, Downconvert modes (excluding AFD), and SD Aspect Ratio modes (excluding OFF), plus no conversion (or HD CrossConvert), are independently stored (per Vid Proc).

13.8 Custom Bottom Crop

This parameter changes the bottom picture crop position. If *Custom Size/Pos* is *On* and this parameter is not unity (100%) for the current mode, the front panel UFC LED lights.

13.8 Custom Bot Crop	Selections	Selection Descriptions
	100% *(default)* +10.0% to +100.0%	Maintains the normal bottom position of the selected format. Enables changing the bottom position using the ADJUST knob.

Custom Bottom Crop is stored separately for each Conversion Mode. Values for each of the Upconvert modes, Downconvert modes (excluding AFD), and SD Aspect Ratio modes (excluding OFF), plus no conversion (or HD CrossConvert), are independently stored (per Vid Proc).

14.1 Output Timing H

This parameter adjusts Video Processor horizontal output timing with reference to the genlock source already selected. When adjusting the horizontal timing (H), this parameter specifies a number of pixels to offset, from zero to full line width. Adjustment range increments from 0 to the width of the line in pixels. The maximum value varies, depending on the format already chosen. Unlike most knob-adjustable parameters, this parameter automatically wraps around from the maximum value to 0 (and vice versa).

14.1 Output Timing H	Selections	Selection Descriptions
	Variable	Adjustment range increments from 0 to the width of the line in pixels. The maximum varies, depending on the format already chosen. *Default:* 0

Note: Output Timing Memory—Independent horizontal and vertical timing values are kept for all available output formats.

14.2 Output Timing V

This parameter adjusts Video Processor vertical output timing with reference to the genlock source already selected. When adjusting the vertical timing (V), this parameter specifies a number of lines to offset, moving the screen up to a half a frame up or down.

14.2 Output Timing V	Selections	Selection Descriptions
	Variable	Adjustment range increments from half a frame up to a half a frame down in single line increments. The maximum varies, depending on the format already chosen. *Default:* 0

Note: Output Timing Memory—Independent horizontal and vertical timing values are kept for all available output formats.

14.4 Extra Frame Delay

This parameter adjusts Video Processor output timing in 1 frame increments from 0 to 6 frames.

14.4 Extra Frame Delay	Selections	Selection Descriptions
	Variable	Adjustment output timing from 0 to 6 frames down in one frame increments. *Default:* 0

15.0 Video Legalizer

This parameter determines the Video Legalizer mode. When set to *Off*, the Video Legalizer is not enabled, and the following clip controls are not active. In *YUV* mode, the *White Clip*, *Black Clip*, and *Chroma Clip* controls are enabled and clip any luma/chroma that exceed the set limits. In *RGB* mode only the *White Clip* and *Black Clip* controls are active and limit the R, G, and B values to those settings. RGB mode requires the video to pass through the RGB Proc Amp to be converted to and from RGB.

15.0 Video Legalizer	Selections	Selection Descriptions
	Off (*default*)	Disables the Video Legalizer.
	YUV	Enables the Video Legalizer to clip YUV to legal levels.
	RGB	Enables the Video Legalizer to clip RGB to legal levels.

15.1 Legalizer White Clip

When the Video Legalizer mode is *YUV* or *RGB*, this parameter limits the white level so that is does not exceed the adjusted limit. Limit can be set from +80 IRE to +120 IRE using the *ADJUST* knob.

15.1 Legalizer White Clip	Selections	Selection Descriptions
	Variable	Adjusts white clip level from +80 IRE to +120 IRE in 0.5 steps. *Default (unity):* 100 IRE

15.2 Legalizer Black Clip

When the Video Legalizer mode is *YUV* or *RGB*, this parameter limits the black level to the adjusted limit. Limit can be set from -10 IRE to +20 IRE, using the *ADJUST* knob.

15.2 Legalizer Black Clip	Selections	Selection Descriptions
	Variable	Adjusts black level limit from -10 IRE to +20 IRE in 0.5 steps. *Default (unity):* 0 IRE

15.3 Legalizer Chroma Clip

When the Video Legalizer mode is *YUV*, this parameter limits the maximum chroma level to the adjusted limit. The limit can be set from +60% to +140%, using the *ADJUST* knob.

15.3 Legalizer Chroma Clip	Selections	Selection Descriptions
	Variable	Adjusts chroma clip level from +60% to +140% in 0.5 steps. *Default (unity):* 100 IRE

16.1 AFD Out SDI 1/2

This parameter menu determines whether the Video Processor inserts a SMPTE 2016 Active Format Descriptor (AFD) packet into its output video. The inserted AFD code does not affect the Video Processor's up/down/cross conversion, but it may affect downstream video processing if the signal is Downconverted.

Note: AFD codes are only inserted into HD video outputs.

16.1 AFD Out SDI2	Selections	Selection Descriptions
	OFF *(default)*	The FS2 does not insert an AFD code into the output. If the video input has a AFD code and the FS2 is not up/down/cross-converting it, the input AFD code will be passed through to the output.
	Auto	If the FS2 is not Upconverting or Downconverting the input video, the input AFD code is passed through. If there is no AFD code on the input video, a "Full Frame" (8) code is inserted. If the FS2 is Upconverting, the appropriate AFD code will be chosen based on the Upconvert mode.
	>16:9	The FS2 always inserts a "Box > 16:9 (center)" AFD code (4), which indicates that the HD image has an aspect ratio greater than 16:9 as a vertically centered letterbox within the 16:9 frame.
	Full Frame	The FS2 always inserts a "Full Frame" AFD code (8), which indicates that the HD image is full frame, with an aspect ratio that is 16:9.
	Pillarbox	The FS2 always inserts a "4:3 (center)" AFD code (9), which indicates that the HD image has a 4:3 aspect ratio as a horizontally center pillarbox image within the 16:9 frame.
	Letterbox	The FS2 always inserts a "16:9 (with complete 16:9 image protected)" AFD code (10), which indicates that the HD image is full frame, with a 16:9 aspect ratio and all image areas are protected.
	14:9	The FS2 always inserts a "14:9 (center)" AFD code (11), which indicates that the HD image has a 14:9 aspect ratio as a horizontally centered pillarbox within the 16:9 frame.
	4:3 Alt 14:9	The FS2 always inserts a "4:3 (with alternate 14:9 center)" AFD code (13), which indicates that the HD image has a 4:3 aspect ratio and with an alternative 14:9 centered pillarbox image within the 16:9 frame.
	16:9 Alt 14:9	The FS2 always inserts a "16:9 (with alternative 14:9 center" AFD code (14), which indicates that the HD image has a 16:9 aspect ratio with an alternative 14:9 center within the 16:9 frame.
	16:9 Alt 4:3	The FS2 always inserts a "16:9 (with alternative 4:3 center)" AFD code (15), which indicates that the HD image has a 16:9 aspect ratio with an alternative 4:3 center within the 16:9 frame.

16.2 AFD VANC Output Lines

This parameter determines which video output lines have AFD VANC inserted (HD output only) on the Video Processor output.

16.2 AFD VANC Output Lines	Selections	Selection Descriptions
	10 *(default)*	Adds AFD VANC to line 10.
	9–42	Uses the ADJUST knob to select which lines will have AFD VANC added.

16.3 Downcvt AFD Dflt

This parameter selects how the Video Processor will operate when parameter *7 Downconvert Mode* has been set to *Auto AFD* and no AFD codes are detected at the selected input source (that is, this menu selects the default Downconversion to use when AFD is absent). This parameter is in effect only when the input is HD (720p, 1080i, or 1080p) and the selected output format is SD (525i or 625i).

16.3 Downconvert AFD Default	Selections	Selection Descriptions
	Hold Last *(default)*	Use the last detected AFD code and continue to use its aspect ratio until a new AFD code is detected again in the SDI metadata.
	Crop	When AFD code is absent, switch the Downconverter mode to Crop.
	Anamorphic	When AFD code is absent, switch the Downconverter mode to Anamorphic.
	14:9	When AFD code is absent, switch the Downconverter mode to 14x9.
	Letterbox	When AFD code is absent, switch the Downconverter mode to Letterbox.

17 Caption Xlator

This parameter translates closed captioning from the SD CEA-608 format on line 21 to the HD CEA-708 format and inserts it into the HD output video stream.

Note: This parameter interacts with parameter *19 SD Line 21 Blanking*; see the explanation for that parameter also.

17 Caption Xlator	Selections	Selection Descriptions
	On	When set to *On* and using the UpConverter, the FS2 will automatically translate incoming line 21 captions to CEA-708 format and insert the VANC packets into the converted HD video stream. This is a complete translation from CEA-608 format to CEA-708 format (including the embedded SD captions). When set to *On* and using the Downconverters, the FS2 will automatically intercept and reformat the SD caption data in the incoming CEA-708 VANC packets, and output it on line 21 of the standard definition outputs.
	Off *(default)*	When *Off*, caption translation is not performed.

In standard definition video (525i59.94), closed captioning data is encoded and sent on line 21 of both fields, using a format defined by the Consumer Electronics Association standard, CEA-608. This is traditionally called "line 21", "SD", or "608" captioning, and is used for analog composite, analog component, and serial digital (SDI) video.

In high definition video, closed captioning is encoded and sent as Vertical Ancillary (VANC) packets in SDI video, using a format defined by the Consumer Electronics Association standard CEA-708 (there is no equivalent for analog HD video). This is traditionally called "HD," "DTV," or "708" captioning. The data formatting and encoding for 708 captions is very different from the data contained in 608 (SD) captioning, reflecting the added features and capabilities available with the CEA-708 standard.

When the Caption Translator is on, the FS2 UpConverter automatically translates incoming line 21 captions to CEA-708 format and inserts the VANC packets into the converted HD video stream. This is a complete translation from CEA-608 format to CEA-708 format (including the embedded SD captions).

The FS2 DownConverters automatically intercept and reformat the SD caption data in the incoming CEA-708 VANC packets, and output it on line 21 of the standard definition outputs.

18 Input Scan Format

This parameter determines how the Deinterlacer handles interlaced vs. pSf inputs. Normally, this control will only be used to indicate that a 1080PsF25 input is PsF and not interlaced.

If *Auto* is selected, the system will look for clues in the source's SMPTE 352 (Payload ID) data and respond accordingly. If there is no SMPTE 352 information, the system will assume that 23.98/24 fps sources are PsF, and 25/29.97/30 fps sources are interlaced.

If *Progressive* is selected, the system will assume that all sources are PsF (even if there is SMPTE 352 data to the contrary).

If *Interlaced* is selected, the system will assume that all sources are interlaced (even if there is SMPTE 352 data to the contrary).

18 Scan Format	Selections	Selection Descriptions
	Auto *(default)*	Deinterlacer detects input source payload ID data and sets the processing format accordingly.
	Progressive	Assumes all input sources are progressive.
	Interlaced	Assumes all input sources are interlaced.

19 SD Line 21 Blanking

This parameter determines whether the FS2 blanks line 21 closed captioning data prior to video processing of an SD 525i video input. (Line 21 normally occurs at the top of the raster in the overscan area of video, so the presence of captioning data or blanking does not interfere with the visible SD or Upconverted video.)

In *Pass* mode, the FS2 does not blank line 21 of the SD video input and passes the unaltered video to the Video Processor for transformation. This is the setting to use if there is no captioning data present on line 21 of a 525i video input.

In *Blank* mode, the FS2 copies and remembers the contents of SD line 21 and then blanks those lines before transformation to ensure captioning data does not get included in the transformed video. If the output video is SD 525i, the copied caption information gets reinserted on line 21 of the output. If the output video is Upconverted and parameter *17 Caption Xlator* is *On*, the copied caption gets translated into an HD caption and inserted into the transformed output (and if the caption translator is *Off*, the HD output does not contain caption data). This is the setting to use if the SD input includes a caption and you want to retain it at the

output (parameter *17 Caption Xlator* must be *On*), or you want to blank it at the output (*17 Caption Xlator* must be *Off*).

In *Auto Blank* mode, the FS2 automatically detects presence or absence of line 21 caption data on the SD input. If no line 21 caption is present, the FS2 passes the video unaltered. If line 21 data is detected, the FS2 copies the data, blanks line 21, and reinserts translated captioning on the transformed HD output if parameter *17 Caption Xlator* is *On*. If the Caption Translator is *Off*, the HD output will not contain captioning. This is the setting to use if your SD input video sometimes contains captions and other times does not, or if you are uncertain which setting to use.

Note: This parameter interacts with parameter *19 SD Line 21 Blanking*; see the explanation for that parameter also.

19 SD Line 21 Blanking	Selections	Selection Descriptions
	Blank *(default)*	In UpConvert or SD Aspect Ratio Convert modes, this setting blanks 525i input video Line 21 caption data *before* conversion. Use this setting if you want to strip caption data from the input or if you want to translate caption data and reinsert it on the HD output (17 Caption Xlator must be On to reinsert caption on the output.)
	Pass	Passes input video unaltered to the converter and to the outputs. Use this setting if no caption data is present on the 525i input.
	Auto blank	The FS2 looks for Line 21 caption data on the video input. If no caption data is found, input video passes to the converter unaltered. If caption data is present, Line 21 is blanked before video conversion occurs, and if *17 Caption Xlator* is *On*, translated caption data gets inserted on the HD output. If *17 Caption Xlator* is *Off*, the HD output will not include captioning data.

20 Test Pattern Video

This parameter selects the video source for the Test Pattern Generator. The pattern generator is turned off and on using *Output* parameter *3 Video Output* mode.

20 Test Pattern Video	Selections	Selection Descriptions
	75% Bars (*default*)	Sets the test pattern to 75% bars.
	Ramp	Sets the test pattern to ramp.
	Multiburst	Sets the test pattern to a multiburst.
	Flat Field	Sets the test pattern to flat field chroma.
	Black	Sets the test pattern to black.
	100% Bars	Sets the test pattern to 100% bars.

21 Freeze Output

This parameter tells the FS2 to freeze the current video frame on all outputs. This may be useful either for testing or in case of loss of the input source.

21 Freeze Output	Selections	Selection Descriptions
	Off *(default)*	Normal operation. The FS2 outputs video from the input.
	On	The FS2 captures and freezes the most current video frame and displays it on the outputs as long as this parameter is set to *On*.

Note: The freeze feature can be controlled not only by the front-panel and web browser interface, but also by a GPI input. When a GPI input is causing the freeze condition, the EXT lamp will be lit on the front-panel.

AUDIO 1 and AUDIO 2 Menu Groups

1.0 Audio Input This parameter performs input audio source selection for Audio Processor 1. Multiple input sources may be present at all the connectors on the FS2 rear panel, but the active input source routed through the FS2 is the one selected here.

1.0 Audio Input	Selections	Selection Descriptions
	Embed SDI1 *(default)*	Uses the embedded audio from the SDI 1 video input as the input source.
	Embed SDI2	Uses the embedded audio from the SDI 2 video input as the input source.
	Embed Fiber1	Uses the embedded audio from the optional Fiber 1 video input as the input source.
	Embed Fiber2	Uses the embedded audio from the optional Fiber 2 video input as the input source.
	HDMI	Uses the embedded audio from the HDMI video input (8-ch) as the input source. Input channels 9-16 are set to Mute.
	Dolby Decode	Selects the Dolby Decoder output as the audio processor input.
	Mute	Sets all input channels to Mute.
	Channel Map	For the 16 channels of audio input, selects inputs according to Audio Map parameters 1.1 through 1.16. Any of the 16 embedded channels can be mapped to one of the 96 sources.
	Stereo Map	For the 16 channels of audio input, selects stereo inputs according to Audio Map parameters 1.17 through 1.24. Any channel pair (8 pair total) can be mapped to 48 different choices.
	AES/EBU	Selects the AES/EBU digital audio input (16-ch) as the input source.
	Analog	Selects the Analog audio connector (DB25, 8-ch) as the input source. Input channels 9-16 are set to Mute.

Note: If parameter *3 Audio Follow Video* is set to *On*, the Audio Input selection is independently remembered for each video input. When Audio Follow Video is *Off*, audio for each video input is not remembered and you must manually select the audio source you want. If you have never manually selected the audio source, the factory default audio selection is used.

1.1–1.16 Audio Map Ch1–16

When *Channel Map* is selected in parameter 1, these *Map* parameters for *Audio Channels 1–16* map an audio source to each audio output channel. Available source selections for the audio output channels are listed in the following table. The *default* selections are AES Ch1–16 for Audio Output Channels 1–16, respectively.

1.1–1.16 Audio Map Ch1–16	Selections	Selections	Selections	Selections
	AES Ch 1	SDI 1 Ch 1	Fiber 1 Ch1	HDMI Ch1
	AES Ch 2	SDI 1 Ch 2	Fiber 1 Ch2	HDMI Ch2
	AES Ch 3	SDI 1 Ch 3	Fiber 1 Ch3	HDMI Ch3
	AES Ch 4	SDI 1 Ch 4	Fiber 1 Ch4	HDMI Ch4
	AES Ch 5	SDI 1 Ch 5	Fiber 1 Ch5	HDMI Ch5
	AES Ch 6	SDI 1 Ch 6	Fiber 1 Ch6	HDMI Ch6
	AES Ch 7	SDI 1 Ch 7	Fiber 1 Ch7	HDMI Ch7
	AES Ch 8	SDI 1 Ch 8	Fiber 1 Ch8	HDMI Ch8
	AES Ch9	SDI 1 Ch 9	Fiber 1 Ch9	Dolby Ch1
	AES Ch10	SDI 1 Ch10	Fiber 1 Ch10	Dolby Ch2
	AES Ch11	SDI 1 Ch11	Fiber 1 Ch11	Dolby Ch3
	AES Ch12	SDI 1 Ch12	Fiber 1 Ch12	Dolby Ch4
	AES Ch13	SDI 1 Ch13	Fiber 1 Ch13	Dolby Ch5
	AES Ch14	SDI 1 Ch14	Fiber 1 Ch14	Dolby Ch6
	AES Ch15	SDI 1 Ch15	Fiber 1 Ch15	Dolby Ch7
	AES Ch16	SDI 1 Ch16	Fiber 1 Ch16	Dolby Ch8
	Analog Ch 1	SDI 2 Ch 1	Fiber 2 Ch1	Dolby Aux1
	Analog Ch 2	SDI 2 Ch 2	Fiber 2 Ch2	Dolby Aux2
	Analog Ch 3	SDI 2 Ch 3	Fiber 2 Ch3	Mute
	Analog Ch 4	SDI 2 Ch 4	Fiber 2 Ch4	
	Analog Ch 5	SDI 2 Ch 5	Fiber 2 Ch5	
	Analog Ch 6	SDI 2 Ch 6	Fiber 2 Ch6	
	Analog Ch 7	SDI 2 Ch 7	Fiber 2 Ch7	
	Analog Ch 8	SDI 2 Ch 8	Fiber 2 Ch8	
		SDI 2 Ch 9	Fiber 2 Ch9	
		SDI 2 Ch 10	Fiber 2 Ch10	
		SDI 2 Ch 11	Fiber 2 Ch11	
		SDI 2 Ch 12	Fiber 2 Ch12	
		SDI 2 Ch 13	Fiber 2 Ch13	
		SDI 2 Ch 14	Fiber 2 Ch14	
		SDI 2 Ch 15	Fiber 2 Ch15	
		SDI 2 Ch 16	Fiber 2 Ch16	

1.17–1.24 Audio Map Ch 1/2 through Ch15/16

When *Stereo Map* is selected in parameter 1, these *Map* parameters for *Audio Channels 1/2–15/16* map a pair of audio sources to each audio output channel pair. Available source pair selections for the audio output channel pairs are listed in the following table. The *default* selections are AES Ch1/2–AES 15/16 for Audio Output Channels 1/2–15/16, respectively.

1.17–1.24 Audio (Stereo) Map Ch1/2–15/16	Selections	Selections	Selections	Selections
	AES Ch1/2	SDI 1 Ch1/2	Fiber 1 Ch1/2	HDMI Ch1/2
	AES Ch3/4	SDI 1 Ch3/4	Fiber 1 Ch3/4	HDMI Ch3/4
	AES Ch5/6	SDI 1 Ch5/6	Fiber 1 Ch5/6	HDMI Ch5/6
	AES Ch7/8	SDI 1 Ch7/8	Fiber 1 Ch7/8	HDMI Ch7/8
	AES Ch9/10	SDI 1 Ch9/10	Fiber 1 Ch9/10	Dolby Ch1/Ch2
	AES Ch11/12	SDI 1 Ch11/12	Fiber 1 Ch11/12	Dolby Ch3/Ch4
	AES Ch13/14	SDI 1 Ch13/14	Fiber 1 Ch13/14	Dolby Ch5/Ch6
	AES Ch15/16	SDI 1 Ch15/16	Fiber 1 Ch15/16	Dolby Ch7/Ch8
		SDI 2 Ch1/2	Fiber 2 Ch1/2	Dolby Aux
	Analog Ch1/2	SDI 2 Ch3/4	Fiber 2 Ch3/4	Mute
	Analog Ch3/4	SDI 2 Ch5/6	Fiber 2 Ch5/6	
	Analog Ch5/6	SDI 2 Ch7/8	Fiber 2 Ch7/8	
	Analog Ch7/8	SDI 2 Ch9/10	Fiber 2 Ch9/10	
	Analog Ch1/2	SDI 2 Ch11/12	Fiber 2 Ch11/12	
	Analog Ch3/4	SDI 2 Ch13/14	Fiber 2 Ch13/14	
	Analog Ch5/6	SDI 2 Ch15/16	Fiber 2 Ch15/16	
	Analog Ch7/8			

2 Embedded Audio Out

This parameter turns embedded audio in the Processor output video to *On*, *Mute*, or *Off*. When set to *On* audio is embedded in the SDI video. When set to *Off*, no audio data is embedded. When set to *Mute*, audio data is embedded but muted.

2 Embed Audio Out	Selections	Selection Descriptions
	On (default)	Turn audio embedding On at the Processor output.
	Mute	Embeds but mutes audio on the Processor output.
	Off	Turns audio embedding Off at the Processor output

3 Audio Follow Video

This parameter determines whether audio settings are remembered for each video input. When AFV is *On*, The FS2 remembers the saved audio settings associated with the currently selected video input. Whenever a new video input is selected, the corresponding audio settings are recalled. This allows you to set up specific audio settings for the different video inputs.

When AFV is *Off*, you must manually select the audio you want for a selected video input, and that audio source remains selected until you change it. If the audio source has never been selected, the factory default audio source is used.

***Audio Follow Video* applies to these parameters:**

- 1 Audio Input
- 1.1—1.16 Audio Map
- 1.17—1.24 Audio Map (Stereo)
- 6.0 Audio Delay
- 7.0 Audio Output Levels
- 7.1—7.16 Audio Level Ch (n)
- 8.0 Audio Output Phase
- 8.1—8.16 Audio Phase Ch (n)

Note: Turning *Audio Follow Video* (AFV) *On* results in the loss of the above settings. When AFV is turned *On*, the source-memory settings are written over the current settings. Turning AFV *Off* again will not restore the original settings, but instead will result in the source memory settings remaining in effect until edited again.

3 Audio Follow Video	Selections	Selection Descriptions
	Off *(default)*	Normal operation. Audio settings must be made separately from any video settings; they are not associated automatically.
	On	The FS2 remembers the saved audio settings associated with the currently selected input. Whenever an input is selected, the corresponding audio settings will be recalled. This allows you to set up specific audio settings for the different video inputs (i.e., perhaps the SDI 1 has a specific embedded audio channel mapping while the component video input might always use AES audio input).

4 Audio SG

This parameter determines the audio signal output from the FS2's internal test signal generator.

4 Audio SG	Selections	Selection Descriptions
	OFF (default)	Turn audio test signal output OFF.
	400 Hz	Output a standard 400 Hz test signal tone.
	1 kHz	Output a standard 1 kHz test signal tone.

6.0 Audio Delay (mS)

This parameter is available only when the audio input (parameter 1) is set to AES/EBU, Analog, Embedded, or HDMI. The parameter allows you to adjust the audio delay to compensate for video timing (delay/latency). Turning the *ADJUST* knob changes the audio delay from -16 to +256 mS (the default is zero delay).

6.0 Audio Delay	Selections	Selection Descriptions
	Variable	Adjustment range increments from -16 to +256 mS. *Default*=0 (synchronized to video output).

If parameter 3 *Audio Follow Video* is set to *On*, then the *Audio Delay* selection is independently kept for each separate input. If *Audio Follow Video* is set to *Off*, then the last setting you made for *Audio Delay* is used.

6.1-16 Audio Delay Ch1-16 (mS)

These parameters apply only when the audio input (parameter 1) is set to *Channel Map*. The parameters allow you to adjust the audio delay to compensate for video timing (delay/latency). Turning the *ADJUST* knob changes the delay from -16 to +256 mS (the default is zero delay).

6.1-16 Audio Delay	Selections	Selection Descriptions
	Variable	Adjustment range increments from -16 to +256 mS. *Default*=0 (synchronized to video output).

If parameter 3 *Audio Follow Video* is set to *On*, then the *Audio Delay* selection is independently kept for each video input. If *Audio Follow Video* is set to *Off*, then the last setting you made for *Audio Delay* is used.

6.17-24 Audio Delay Ch1/2-15/16(mS)

These parameters apply only when the audio input (parameter 1) is set to *Stereo Map* and allow you to adjust the stereo audio delay to compensate for video timing (delay/latency). Turning the *ADJUST* knob changes the delay from -16 to +256 mS (the default is zero delay).

6.17-24 Audio Delay	Selections	Selection Descriptions
	Variable	Adjustment range increments from -16 to +256 mS. *Default*=0 (synchronized to video output).

If parameter 3 *Audio Follow Video* is set to *On*, then the *Audio Delay* selection is independently kept for each video input. If *Audio Follow Video* is set to *Off*, then the last setting you made for *Audio Delay* is used.

7.0 Audio Output Levels

This parameter enables or disables individual audio output level adjustment of the 16 audio output channels. When *ADJUST* is selected, parameters 7.1 through 7.16 set the output levels for each separate channel.

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7.0 Audio Output Levels	Selections	Selection Descriptions
	Unity (*default*) Adjust	Disable audio output level adjustments and set levels to unity. Enable audio output level adjustments for the 16 audio channels.

Note: If parameter 3 *Audio Follow Video* is set to *On*, then *Audio Output Levels* selection is independently kept for each video input. If *Audio Follow Video* is set to *Off,* then the last setting you made for *Audio Output Levels* is used.

7.1–7.16 Audio Level Ch1–16

These 16 parameters adjust the audio levels of the 16 audio channels ± 18dB dB.

7.1–7.16 Audio Level Ch1–16	Selections	Selection Descriptions
	Variable	Adjustment of audio level +/-18 dB range in steps of 0.5dB. *Default:* +0dB

8.0 Audio Output Phase

This parameter enables or disables individual audio phase adjustment of the 16 audio output channels. When *Adjust* is selected, parameters *8.1* through *8.16* are then used to adjust phase for the 16 channels.

8.0 Audio Output Phase	Selections	Selection Descriptions
	Unity (*default*) Adjust	Disable audio phase adjustments and set phase to unity. Enable audio phase adjustments for the 16 audio channels.

Note: If parameter 3 *Audio Follow Video* is set to *On*, then Audio Output Phase selection is independently kept for each video input. If *Audio Follow Video* is set to *Off*, then the last setting you made for *Audio Output Phase* is used.

8.1–8.16 Audio Phase Ch1–16

These parameters select whether audio phase is normal (same as passed from the input) or inverted on Channels 1–16.

8.1-16 Audio Phase Ch1–Ch16	Selections	Selection Descriptions
	Normal (*default*) Invert	Phase is unaltered as it passes from the input to the output. Phase is inverted as it passes from the input to output. (This may be useful to correct analog audio signals that are incorrectly wired, placing audio out of phase at input.)

If parameter 3 *Audio Follow Video* is set to *On*, then Audio Output Phase selection is independently kept for each video input. If *Audio Follow Video* is set to *Off*, then the last setting you made for *Audio Output Phase* is used.

9.0 Audio Dolby E Timing

This parameter enables or disables audio timing adjustment of the Dolby E signal.

9.0 Audio Dolby E Timing	Selections	Selection Descriptions
	On (*default*)	Enable audio timing of the Dolby E signal.
	Off	Disable audio timing of the Dolby E signal.
	Offset	Turns on Dolby E timing offset.

Chapter 5: Browser Remote Control

Remote FS2 Control Via a Web Browser

The FS2 web interface consists of a built-in optimized web server that provides control via a web browser running on a network-attached computer. The FS2 browser screens are presented and described on the following pages, organized as they appear in the browser. The description tables list the parameter menu numbers in parentheses so you can quickly relate screens to front panel menus.

Supported browsers: Firefox 4, Internet Explorer 9, and Safari 5 are the supported FS2 web browsers. Others are likely to work but are not guaranteed.

Supported RJ45 Ethernet network connections:

- Closed local area network (LAN)
- Straight computer-to-FS2 cable connection
- Broadband wide area network (WAN) with the firewall opened for the FS2 (not recommended since anyone on the internet can then access the FS2)

Internally the FS2 senses and adapts to either a "straight-through" CAT 5 Ethernet cable or null-modem (crossover) cable using standard RJ45 connectors. No setup or strapping is needed to adapt to the cable.

For browser access, enter the FS2 IP address in the browser's address field.

By default, the FS2 is set to automatically connect to your network's DHCP server to get an IP address and other network configuration data. You will find the IP address in *CONFIG* Menu Group parameter *2.2* as follows:

1. Press the *CONFIG* button on the FS2 front panel.
2. Turn the *SELECT* knob until you reach parameter *2.2 IP Address*.
3. Enter the IP address shown in *2.2* in the browser address field.

When the browser successfully connects to the FS2, the main *Status* screen shown on the next page is displayed. If the browser fails to connect, make sure *CONFIG* settings *2.1* through *2.4 (IP, subnet, and gateway addressing)* match the network setup of the browser host. See the *CONFIG* details later in this section for how to set these values. You can either make the computer match the FS2, or make the FS2 match your computer.

General Web Browser Screen Information

The main Status screen appears below. All FS2 screens have common elements:

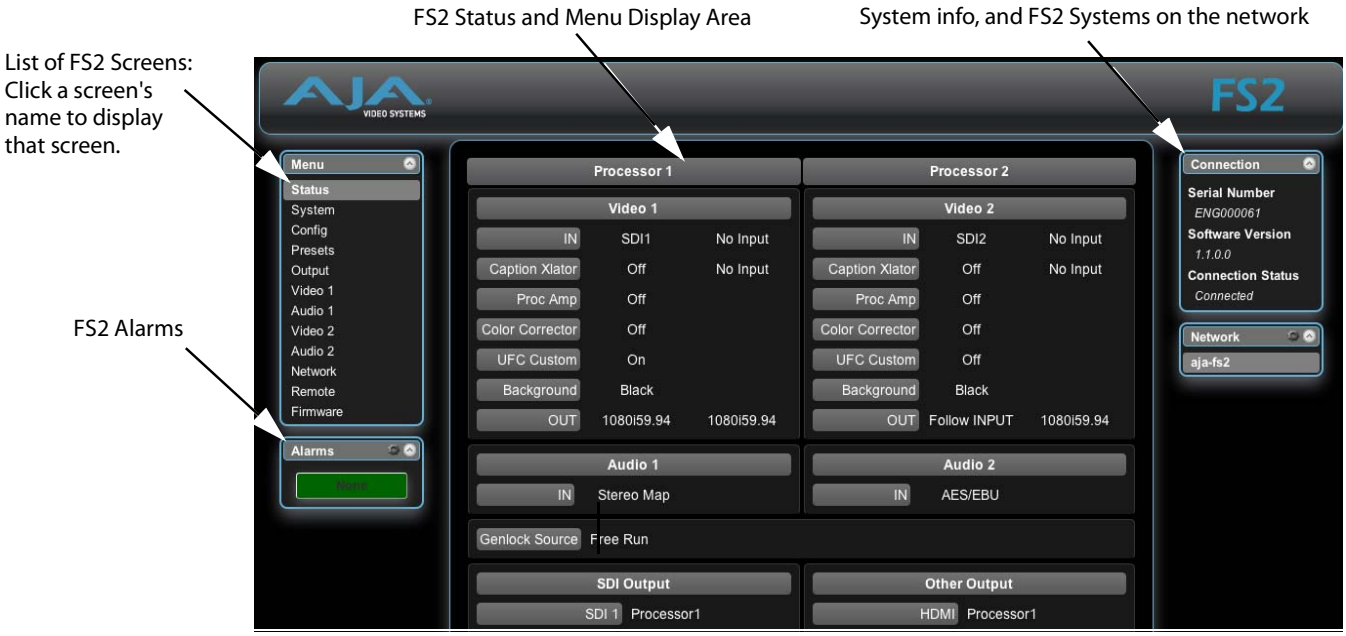
Screen List: On the left of each screen is a navigational list of the available FS2 screens. Click any of these items to jump to that screen.

FS2 Alarms: The lower left side of the screen shows alarms that alert you to possible problem conditions, such as disconnected or failed power supplies and video format incompatibilities.

Status and Menu Display: In the center of each screen you'll find the main display showing the status and menu selections for the screen you are viewing. The content of FS2 web screens closely mirrors the parameter menus displayed on the front panel; if you hover the cursor over any parameter, the equivalent front panel parameter number is displayed.

Connection: The right side of the screen lists FS2 system details, including system serial number, installed software version, and connection status. This information is useful if you ever have to call AJA Technical Support for help.

Systems: The right side of the screen lists systems on the network. If you right-click any FS2 system in the list, the ID LEDs on the unit light to identify it. Another way to identify systems is to notice which FS2 system's EXT front panel LED blinks when you change any setting from a remote control device, such as the web browser.



FS2 Web Interface, Main Status Screen

Controlling Multiple FS2s

From any screen, you can see at-a-glance all of the FS2 devices present on the same local LAN as well as the current FS2 you are controlling. Clicking on any of the listed systems will bring up the *Status* screen of that FS2.

Note: the FS2 you control may be running a different software version, so screens may look different. It's a good idea to have all your FS2 devices running the most current software and the same version. Also, if the *Default Gateway* (parameter *2.4*) is not configured properly, other FS2s will not be visible. If the display shows *No FS2's found*, check the gateway setting.

Resetting Values To Factory Settings

FS2 web browser screens feature many user controls that can be reset to factory values by simply "right-clicking" on the parameter label. When you right-click, the browser displays a *Reset to Factory* message that will cause the parameter to be reset.

Note: This only works with computers that allow right-clicking. Some computers may not permit this operation.

You can perform a global reset to factory values of all System, Video 1/2, Audio 1/2, and Output parameters (the same set of parameters acted on by a Preset Recall). To do this, go to the *Presets* screen and click on the *Recall* button in the *Factory Preset* row. User preferences, network settings, and existing Presets are not affected by recalling the Factory Preset.

Slider Operation

Some screens contain slider controls for setting values. To set a value, you can click on a slider to select it and then use the mouse to drag the slider to the position you desire. For fine tuning, while the slider is selected (highlighted by a blue border), use the keyboard left and right arrow keys to change the value one unit at a time. After setting a slider's position, click on the page's background area (blue highlight turns off) to ensure the change is confirmed and saved.

Screen Descriptions

Now that you have had an introduction to how the FS2 browser works and how to navigate the screens, we will describe each screen and its settings in detail. The screens are described in the order listed on main screen (click to jump):

- "Network Pane and Network Configuration Screen" on page 102
- "Alarm Configuration Screen" on page 105
- "Status Screen" on page 107
- "System Screen" on page 108
- "Config Screen" on page 116
- "Presets Screen" on page 120
- "Output Screen" on page 122
- "Video 1 & 2 Screens" on page 127
- "Audio 1 and 2 Screens" on page 148
- "Remote Screen" on page 155
- "Firmware Screen" on page 159

Network Pane and Network Configuration Screen

The *Network* pane on the right side of any screen lists the FS2 systems that appear on the network. This pane includes three additional controls:

- Hover the cursor over any system name to see its IP address.
- Right-click any system and select *Identify* to light the system *ID* LEDs.
- Click the gear-shapped icon in the Network pane (or select *Network* from the *Menu* list on the left side of the screen) to open the *Network Configuration* screen listing FS2 network settings.

The *Network Configuration* screen allows you to view and change your FS2's network settings and then click *Apply* to activate them. Detailed setup instructions for connecting the FS2 to a network are included in *Chapter 3, "Network Connection."*

FS2 Web Interface, Network Configuration Screen

IP Address Type

IP Address Type determines the type of TCP/IP network configuration used by the FS2. *DHCP* enables the FS2 to connect to the network DHCP server, which assigns the *IP Address*, *Netmask*, and *Gateway* automatically. *Static* lets you set these parameters manually. Networking is discussed in detail in *Chapter 3, Network Connection*.) Consult your network administrator about how to set this value.

Note: If the *IP Address Type* is *DHCP*, the *IP Address*, *Netmask*, and *Default Gateway* are gray, indicating they are set automatically and cannot be changed unless IP Address Type is first set to *Static*. Changes are saved and activated upon confirmation using the *Apply* button.

(2.1) IP Address Type	Selections	Selection Descriptions
	DHCP *(default)*	Select automatic IP address assignment from the LAN DHCP server. If the FS2 cannot find a DHCP server, it fails over to the static IP address.
	Static Addr	Assign a static IP address manually (using parameters 2.2, 2.3, and 2.4). The factory default static IP address: 192.168.0.2

IP Address

IP Address determines the static IP address used by the FS2 for TCP/IP networking. (Networking is discussed in *Chapter 3, Network Connection*.) Consult your network administrator about how to set this value.

(2.2) IP Address	Selections	Selection Descriptions
	Variable	If *IP Address Type* is set to *DHCP*, the IP address is set automatically by the network DHCP server and cannot be entered here. If *IP Address Type* is set to *Static*, enter an IP address compatible with your LAN here. Also enter a netmask and default gateway address in the following two parameters. Click *Apply* when you are ready to apply all three entries to change the FS2's network addressing. If *IP Address Type* is set to *DHCP* and there is a DHCP failure, the IP address is set to the static IP address. The default static IP address is 192.168.0.2

Note: For the following selections, you will be setting multiple values separated by periods (e.g., 90.0.181.0).

Netmask

Netmask determines the subnet mask used by the FS2 for TCP/IP networking. (Networking is discussed in *Chapter 3, "Network Connection*.) Consult your network administrator about how to set this value.

(2.3) Subnet Mask	Selections	Selection Descriptions
	Variable	Enter a subnet mask compatible with your LAN. This is only needed for Static IP configurations. The factory default *Subnet Mask* is 255.0.0.0 If *IP Address Type* is set to DHCP, the Subnet Mask is set by the DHCP server and cannot be changed by the user.

The note about editing IP addresses in parameter *2.2* also applies to *2.3* and *2.4*.

Default Gateway

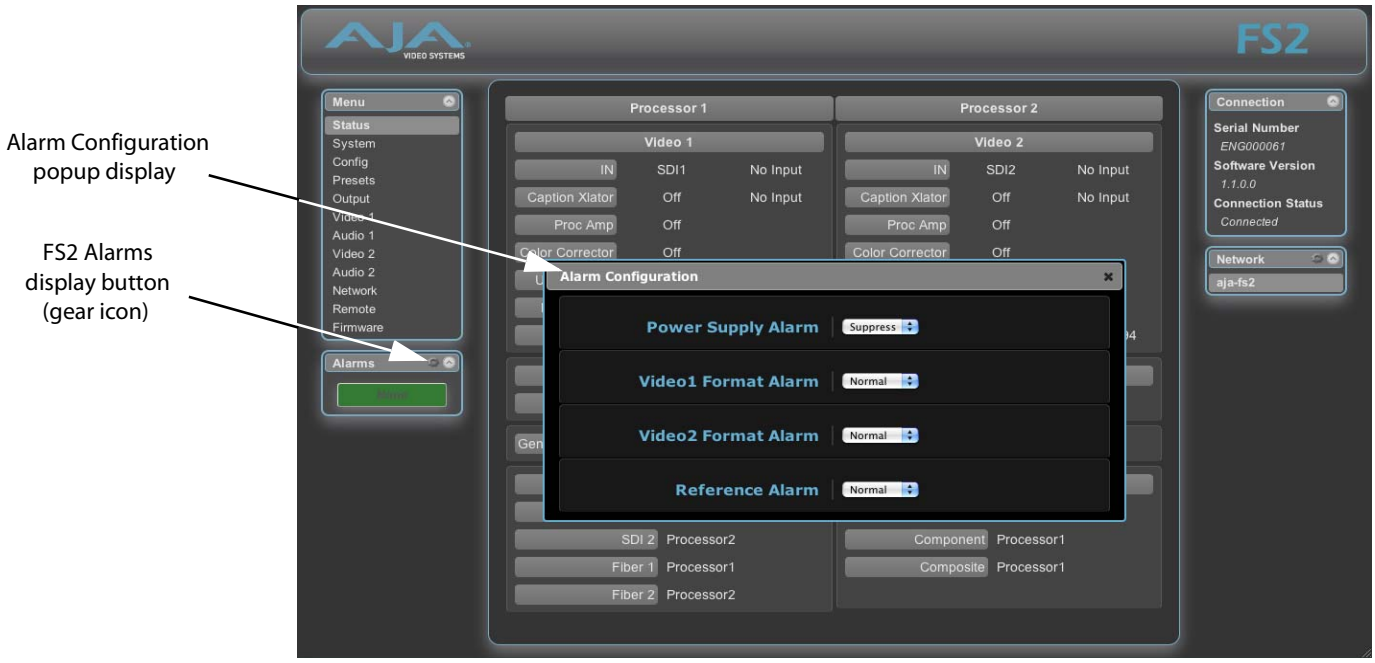
Default Gateway determines the gateway or router used on your LAN for TCP/IP networking. (Networking is discussed in *Chapter 3, Network Connection.)* Consult your network administrator about how to set this value.

Without a properly configured default gateway (whether you have a router/gateway or not), the FS2 will be unable to see other FS2s on the network, although you may still be able to control this FS2 via a web browser. Also, without a proper gateway defined, the discovery feature "Available FS2s—Click to Refresh" on the *Network* web page will not work correctly and list other FS2s on the network.

(2.4) Default Gateway	Selections	Selection Descriptions
	Variable	Enter a default gateway or router address. This is only needed for Static IP configurations. The factory *Default Gateway* is 192.168.0.1. If *IP Address Type* is set to DHCP, the Default Gateway is set by the DHCP server and cannot be changed by the user.

Alarm Configuration Screen

You can pop open the *Alarm Configuration* display at any time and on any screen by clicking the display button in the upper right corner of the *Alarms* panel. The *Alarm Configuration* display provides control over these alarm settings: *Power Supply Alarm*, *Vid 1 Format Alarm*, *Vid 2 Format Alarm*, and *Reference Alarm*. To close the window, press the ESC key, or click the X in the upper right corner.



FS2 Web Interface, Alarm Configuration Screen

Power Supply Alarm

Power Supply Alarm controls how the FS2 alarm responds to power supply disconnection or failure. By default (*Normal*) the alarm is triggered anytime either of the two internal power supplies fails or is disconnected from a power source (becomes unplugged). If the FS2 will be connected using only one power cord and supply, you can suppress the alarm. The *ADJUST* knob changes the setting, and the change is automatically saved.

(5) Power Supply Alarm	Selections	Selection Descriptions
	Normal *(default)*	Alarm triggers if either internal power supply experiences a failure or is disconnected from mains power.
	Suppress	Alarm will not be triggered by a power supply failure or disconnection from power.

Vid1 Format Alarm

Vid1 Format Alarm indicates incompatible input/output formats in the Video 1 Processor. When set to *Normal* (default), an alarm is triggered whenever the selected input video signal format of Video Proc 1 is incompatible with the selected output format (refer to the matrix of inputs and compatibilities presented in *Chapter 2*). If you want the FS2 alarm to only trigger on hardware failures, you can suppress the *Format*

Alarm. The front panel Vid 1 FMT ERR LED lights when format errors are detected even if this selection is set to *Suppress*. The *ADJUST* knob changes the setting, and the change is automatically saved.

(6.1) Vid 1 Format Alarm	Selections	Selection Descriptions
	Normal *(default)*	Alarm triggers if the format of the selected input video signal is incompatible with the selected output format.
	Suppress	Alarm will not be triggered by a format incompatibility.

Vid2 Format Alarm

Vid2 Format Alarm indicates incompatible input/output formats in the Video 2 Processor. When set to *Normal* (default), an alarm is triggered whenever the selected input video signal format of Video Proc 2 is incompatible with the selected output format (refer to the matrix of inputs and compatibilities presented in *Chapter 2*). If you want the FS2 alarm to trigger only on hardware failures, you can suppress the *Format Alarm*. The front panel Vid 2 FMT ERR LED lights when format errors are detected even if this selection is set to *Suppress*. The *ADJUST* knob changes the setting, and the change is automatically saved.

(6.2) Vid 2 Format Alarm	Selections	Selection Descriptions
	Normal *(default)*	Alarm triggers if the format of the selected input video signal is incompatible with the selected output format.
	Suppress	Alarm will not be triggered by a format incompatibility.

Reference Alarm

Reference Alarm controls how the FS2 responds to various reference video signal conditions. When set to *Normal*, the alarm triggers under these conditions:

1. The reference signal is not detected or is incompatible with the output format.
2. The reference signal is required, either because *2 Output format* is set to *Follow Ref* or *6.1 Genlock Source* is set to *Reference*.

If you want the FS2 alarm to trigger only on hardware failures, you can suppress the *Format Alarm*. The *ADJUST* knob changes the setting, which is automatically saved.

Note: For proper operation the Input reference signal must be stable and properly terminated using a 75-ohm terminator on either the unused loop connector or the last piece of downstream equipment to which the Ref Video is connected.

(7) Reference Alarm	Selections	Selection Descriptions
	Normal *(default)*	Alarm triggers if the reference signal is not detected, is incompatible with the output format, or the reference is required because the output is set to *Follow Ref* or the genlock source is set to *Reference*.
	Suppress	Alarm will not be triggered by reference errors.

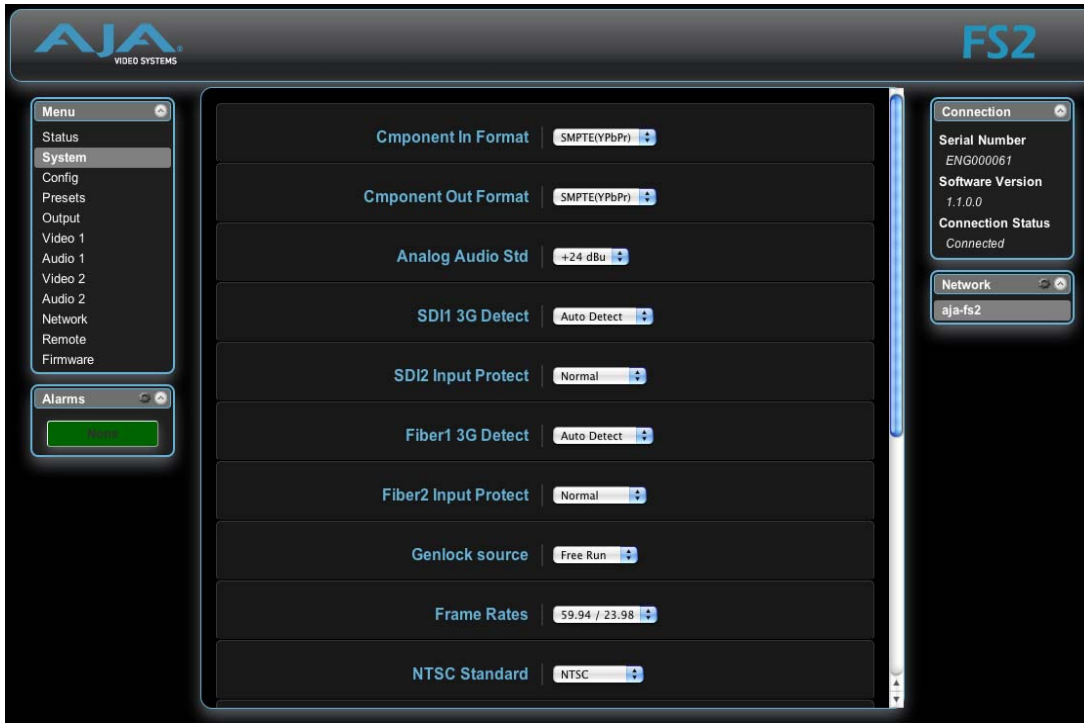
Status Screen

The Status screen displays overall FS2 operational status. You can right-click most values to change them, allowing you to edit many parameters in one place. Parameters with format incompatibilities or other alarms are highlighted in red.

Status Screen			
	Processor 1 Video 1	IN	Shows the input source and format for Video Processor 1.
		Captioning	Shows the caption selection and caption signal presence.
		Proc Amp	Shows whether the Proc Amp is On or Off.
		Color Corrector	Shows whether the Color Corrector (RGB) is On or Off.
		UFC Custom	Shows whether Custom conversion and AFD are On or Off.
		Background	Shows the source of Background video.
		OUT	Shows the output video selection and format for Video Proc 1.
	Processor 1 Audio 1	IN	Shows the audio input feeding Audio Processor 1.
	Processor 2 Video 2	IN	Shows the input source and format for Video Processor 2.
		Captioning	Shows the captioning selection and signal presence.
		Proc Amp	Shows whether the Proc Amp is On or Off.
		Color Corrector	Shows whether the Color Corrector (RGB) is On or Off.
		UFC Custom	Shows whether Downconvert Mode Auto AFD is active.
		Background	Shows the source of Background video.
		OUT	Shows the output video selection and format for Video Proc 2.
	Processor 2 Audio 2	IN	Shows the audio input feeding Audio Processor 2.
	Genlock Source	Reference	Shows the input providing the genlock reference.
	SDI Output	SDI 1	Shows the source of the SDI 1 output.
		SDI 2	Shows the source of the SDI 2 output.
		Fiber 1	Shows the source of the Fiber 1 output.
		Fiber 2	Shows the source of the Fiber 2 output.
	Other Outputs	HDMI	Shows the source of the HDMI output.
		Component	Shows the source of the Component video output.
		Composite	Shows the source of the Composite video output.

System Screen

The System screen lets you select formats and specify input operation.



FS2 Web Interface, System Screen

Component In Format

Cmpnt In Format configures the format of the *Component* video input.

(1) Cmpnt In Format	Selections	Selection Descriptions
	SMPTE YPbPr *(default)*	Configure the Component Video Input source as SMPTE YPbPr. This is the default for HD component video.
	Beta YPbPr	Configure the Component Video Input source as Beta YPbPr (standard definition).
	Composite (Y)	Configure the Component Video Input source as composite, providing a second composite input (requires version 1.1 firmware).

Component Out Format

Cmpnt Out Format configures the format of the *Component* video output.

(2) Cmpnt Out Format	Selections	Selection Descriptions
	SMPTE YPbPr *(default)*	Configure the Component Video Output as SMPTE YPbPr. This is the default for HD component video.
	Beta YPbPr	Configure the Component Video Output as Beta YPbPr (SD).
	RGB	Configure the Component Video Output as RGB.
	Composite (Y)	Configure the Component Video Output source as composite, providing a second composite output (requires version 1.1 firmware).

Analog Audio Standard

Analog Audio Standard sets the *Analog Audio Input* and *Output* levels of the FS2 with reference to full scale digital (0 dBFS). Selections range from consumer levels (+12 dBu) to SMPTE professional (+24 dBu).

(3) Analog Audio Standard		Description of Choices
	+24 dBu *(default)* +18 dBu +15 dBu +12 dBu	Select +24 dBu as the expected analog audio level. Select +18 dBu as the expected analog audio level. Select +15 dBu as the expected analog audio level. Select +12 dBu as the expected analog audio level. (Above settings correspond to maximum amplitude–0 dBFS)

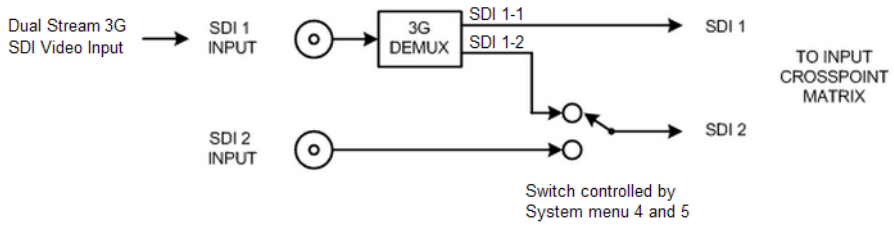
SDI1 3G Detect

This parameter configures 3G operation of the SDI 1 video input. The input can be set for *1080p50/60* (single video), *Dual Stream* 3G SDI (two muxed videos), or *Auto-Detect* whether the input is 1080p50/60 single or Dual Stream 3G video (requires SMPTE Format ID to be present in the SDI Input).

In *Auto Detect* mode, the hardware looks for SMPTE 352 Payload ID ANC data on the video inputs to determine whether there are two independent 1080i signals (Dual Stream) or a single 1080p50/60 signal. If there is no SMPTE 352 data, the default is to assume *1080p50/60* (single), but you can manually instruct the FS2 to always assume either *1080p50/60* or *Dual Stream* by selecting one of those choices.

In *1080p50/60* mode, the system always assumes that the input is a single 1080p50/60 signal (even if there is SMPTE 352 data to the contrary).

In *Dual Stream* mode, the system always assumes (even if there is SMPTE 352 data to the contrary) that the input consists of two multiplexed independent 3G video streams . The signals are demuxed as shown.



Dual Stream 3G Mode Schematic

(4) SDI1 3G Detect	Selections	Selection Descriptions
	Auto Detect *(default)*	Automatically detects presence of 1080p50/60 or Dual Stream video.
	1080p50/60	Configures the SDI1 input for 1080p50/60 (single) video.
	Dual Stream	Configures SDI 1 for Dual Stream 3G video (uses SDI 1 and SDI 2 in Input Crosspoint matrix).

SDI2 Input Protect

This parameter allows you to protect Input SDI 2 from being taken by a *Dual Stream* selection made in menu 4.

In the *Normal* setting (default), the SDI 2 video signal always comes from the SDI 2 physical input. Choosing *Auto Detect* or *Dual Stream* in parameter 4 does not switch away from the physical input.

In the *Dual Stream* setting, the FS2 assumes both channels of Dual Stream 3G video are muxed onto a single wire at the SDI1 input. The SDI 2 video signal is then taken internally from the SDI 1 Stream 2 signal instead of the SDI2 In connector.

5 SDI2 Input Protect	Selections	Selection Descriptions
	Normal *(default)*	SDI2 cannot be used by Dual Stream 3G SDI video present on the SDI Input 1.
	Dual Stream	Allows SDI2 to be used by a Dual Stream 3G SDI input present on SDI 1.

The following table shows the selections and their results. In the table, SDI1-1 and SDI1-2 are the two muxed streams entering the SDI1 Input.

4 SDI-3G Detect Setting	5 SDI2 Input Protect Setting	1 Video Input Setting	Resulting Input to Crosspoint Matrix
Dual Video	Dual Stream	SDI1	SDI1-1
		SDI2 (unused)	SDI1-2
	Normal	SDI1	SDI1-1
		SDI2	SDI2
Single Video	Dual Stream	SDI1	SDI1
		SDI2	SDI2
	Normal	SDI1	SDI1
		SDI2	SDI2

Fiber1 3G Detect This parameter configures 3G operation of the Fiber 1 video input. The input can be set for *1080p50/60* (single video), *Dual Stream* 3G SDI (two muxed videos), or *Auto-Detect* whether the input is 1080p50/60 single or Dual Stream 3G video (requires SMPTE Format ID to be present in the SDI Input). See parametr *4 SDI 1 3G Detect* for an illustration and details.

6 Fiber1 3G Format Detect	Selections	Selection Descriptions
	Auto Detect *(default)*	Automatically detects presence of 1080p50/60 or muxed video.
	1080p50/60	Configures the Fiber 1 input for 1080p50/60 video.
	Dual Stream 3G	Configures Fiber 1 for Dual Stream 3G Video (uses SDI1 and SDI2 in Input Crosspoint matrix).

Fiber2 Input Protect This parameter allows you to protect Input Fiber 2 from being taken by a *Dual Stream* selection made in *6 Fiber1 3G Format Detect* setting.

In the *Normal* setting (default), the Fiber 2 video signal always comes from the SDI 2 physical input. Choosing *Dual Stream* video in parameter 6 does not switch away from the physical input.

In the *Dual Stream* setting, the FS2 assumes both channels of Dual Stream 3G video are muxed onto a single wire at the Fiber 1 input. The Fiber 2 video signal is then taken internally from the Fiber 1 Channel 2 signal instead of the Fiber 2 Input connector.

7 Fiber2 Input Protect	Selections	Selection Descriptions
	Normal *(default)*	Fiber 2 cannot be used by Dual Stream 3G SDI video present on Fiber 1.
	Dual Stream	Allows Fiber 2 to be used by a Dual Stream 3G SDI input present on Fiber 1.

Genlock Source *Genlock Source* selects the source of reference video used to genlock to, either automatically or explicitly.

(8)	Selections	Selection Descriptions
	Reference *(default)*	Use the signal on the *Ref* connector as the genlock source.
	Vid1 Input	Use the *Vid1* input signal as the genlock source.
	Vid2 Input	Use the *Vid1* input signal as the genlock source.
	Free run	Free run mode (FS2 syncs to its own timebase, not locked to an external source).

Frame Rates *Frame Rates* selects the HD video frame rate associated with the video standard.

(9) Frame Rates	Selections	Selection Descriptions
	59.94/23.98 *(default)* 50/25 60/24	Select *59.94/23.98* if your desired rate is either 59.94 *or* 23.98. Select *50/25* if your desired rate is either 50 or 25 (PAL). Select *60/24* if your desired rate is either 60 or 24.

NTSC Standard *NTSC Standard* selects the NTSC video standard.

(10) NTSC Standard	Selections	Selection Descriptions
	NTSC *(default)* NTSC Japan	Select NTSC to select the NTSC standard for North America. Select NTSC Japan to select the NTSC standard for Japan.

Composite Downconv *Composite Downconv* selects the type of Downconversion performed on the incoming selected HD source input for the analog *Composite* (NTSC or PAL) video output.

This parameter is used only when the Video Processor feeding the Composite output (Output parameter *5 Composite Out*) is producing HD. If that Video Processor is producing SD, the Composite Downconverter is not needed, and the format on the Composite output is the same as seen on the other outputs (controlled by parameter *7 Downconvert Mode* for that Video Processor).

When the Downconverter is used, an additional frame of video delay is incurred and the analog *Composite* output will be one frame behind the other outputs.

(11) Composite Downconv	Selections	Selection Descriptions
	Crop *(default)*	Image is cropped to fit new screen size.
	Anamorphic	HD image is converted to full-screen SD with a 16x9 aspect ratio (anamorphic).
	14x9	Image is reduced slightly with aspect ratio preserved. Black is added top and bottom, and the left and right sides are cropped.
	Auto AFD	Automatically selects the best Downconvert mode based on the input video's Active Format Description (AFD) code. If the input video is not carrying an AFD VANC code, the Downconverter defaults to the mode specified in parameter menu *16.3 Downconvert AFD Default*.
	Letterbox	Image is reduced with black top and bottom added to image area, with the aspect ratio preserved.

HDMI RGB Range

HDMI RGB Range selects the output range for HDMI YCbCr. *Full* allows a range of 0-255 and *SMPTE* limits the range to 16 to 235 (see note).

Note: YCbCr luminance (Y) channel data ranges nominally between 16 (black) and 235 (white). Values outside of this range are typically clamped to the valid range. This may cause confusion because JPEG JFIF YCbCr values range between 0 and 255. Mixing these values causes video contrast shifts. You can avoid these shifts if you maintain one range of values throughout your system.

(12) HDMI RGB Range	Selections	Selection Descriptions
	Full *(default)*	Selects an HDMI luminance output range of 0-255.
	SMPTE	Selects an HDMI luminance output range of 16-235.

AES/EBU SRC Mode

AESEBU SRC Bypass controls the mode of the audio sample rate converters for AES/EBU input audio pairs.

In *Manual* mode, the sample rate converters are enabled manually for each AES pair.

In *Auto* mode, the system decides how to handle sample rate conversion. Normal PCM audio passes through the Sample Rate Converters and gets converted, as appropriate. AES channels in which the *non-audio* flag is set in the Channel Status Word are automatically detected and allowed to bypass the Sample Rate Converters; the signal passes unaltered and the existing data is preserved,

(14.0) AES/EBU SRC Mode	Selections	Selection Descriptions
	Auto *(default)*	The signal bypasses the Sample Rate Converters for audio channels containing a non-audio flag in the Channel Status Word. If the non-audio flag is not set, the signal passes normally through the Sample Rate Converters.
	Manual	The FS2 determines what to do about audio sample rate conversion on a channel pair-by-pair basis. If a channel pair is set to *On*, sample rate conversion is applied to that channel pair. If a channel pair is set to *Bypass*, the FS2 leaves embedded audio as is, bypassing sample rate conversion; this is useful for Dolby® 5.1 embedded audio and other applications where you do not want sample rate conversion to occur.

AES/EBU SRC

This group of settings controls audio sample rate conversion on AES/EBU input audio channel pairs 1/2, 3/4, 5/6, 7/8, 9/10, 11/12, 13/14, and 15/16.

When (14.0) AES/EBU SRC Mode is set to *Auto*, no settings per channel are required; sample rate conversion occurs normally for all channels unless the *non-audio* flag is set in the Channel Status Word, in which case sample rate conversion gets bypassed and the signal is passed through unaltered.

When 14.0 AES/EBU SRC Mode is set to *Manual*, each channel pair can be set manually to *On* or *Bypass*. using the AES/EBU SRC settings (parameters 14.1–14.8).

On is the default setting in which audio is rate-converted and synced with video (SRC is applied).

Bypass is available for use when Dolby® 5.1 and similar schemes need to be preserved and the audio data passed unaltered (no SRC is applied).

Set these parameters to *Manual (14.0)*and *Bypass (14.1-14.8)* only if the following are both true:

1. You want to pass unaltered digital encoded audio from either an embedded or AES Input to an embedded and/or AES Output.
2. You have the embedded or AES input genlocked to the FS2 output. In other words, the encoded audio will not survive the frame-sync function (dropping or repeating frames) so it needs to be set to lock to the input. You can lock to a reference only if that reference is driving both the FS2 and the upstream source of the embedded or AES input to the FS2.

(14.1-14.8) AES/EBU SRC	Selections	Selection Descriptions
	On *(default)*	Audio sample rate conversion (SRC) is applied to the affected channel pairs and keeps the video and audio synchronized.
	Bypass	Audio sample rate conversion (SRC) is *NOT* applied to the affected channel pairs. The signal is passed through unaltered, which is useful for preserving Dolby® 5.1 embedded audio and other applications where existing data on the input must be preserved and passed to the output.

Dolby Decoder Input

This menu selects the audio input pair used to feed compressed data to the Dolby Audio Decoder (option).

(15) Dolby Decoder Input	Selections	Selection Descriptions		
	Input Pair	AES Ch1/2	SDI 2 Ch1/2	Fiber 2 Ch1/2
		AES Ch3/4	SDI 2 Ch3/4	Fiber 2 Ch3/4
		AES Ch5/6	SDI 2 Ch5/6	Fiber 2 Ch5/6
		AES Ch7/8	SDI 2 Ch7/8	Fiber 2 Ch7/8
		AES Ch9/10	SDI 2 Ch9/10	Fiber 2 Ch9/10
		AES Ch11/12	SDI 2 Ch11/12	Fiber 2 Ch11/12
		AES Ch13/14	SDI 2 Ch13/14	Fiber 2 Ch13/14
		AES Ch15/16	SDI 2 Ch15/16	Fiber 2 Ch15/16
		SDI 1 Ch1/2	Fiber 1 Ch1/2	
		SDI 1 Ch3/4	Fiber 1 Ch3/4	
		SDI 1 Ch5/6	Fiber 1 Ch5/6	
		SDI 1 Ch7/8	Fiber 1 Ch7/8	
		SDI 1 Ch9/10	Fiber 1 Ch9/10	
		SDI 1 Ch11/12	Fiber 1 Ch11/12	
		SDI 1 Ch13/14	Fiber 1 Ch13/14	
		SDI 1 Ch15/16	Fiber 1 Ch15/16	

Dolby Decoder Mode

The *Dolby Decoder Mode* determines the Dolby Decoder "Bitstream Detect Mode" on the Dolby Decoder Card. In Auto mode, the Dolby Decoder decodes Dolby E, Dolby Digital, or Dolby DigitalPlus bitstreams. If none of the above are detected, the card passes the incoming audio as PCM.

In Dolby E mode, the Dolby Decoder only decodes Dolby E bitstreams, and mutes its outputs if it detects anything else.

In Dolby D mode, the Dolby Decoder only decodes Dolby Digital or Dolby DigitalPlus bitstreams, and mutes its outputs if it detects anything else.

Note: This menu is visible only if the Dolby Decoder Option is installed.

(16) Dolby Decoder Mode	Selections	Selection Descriptions
	Auto *(default)*	Automatically decode Dolby E, Dolby digital, Dolby DigitalPlus, or PCM.
	Dolby E	Decode Dolby E only.
	Dolby Digital	Decode Dolby Digital or Dolby DigitalPlus only.

Dolby Decoder Aux Out

The Dolby Decoder outputs eight channels of decoded audio, plus an additional Aux output which is a 2-channel (stereo) mixdown of one of the selected Dolby Programs (1-8). This selection determines which of the Programs is used for the Aux mixdown.

In this context, *Program* is not the same as a physical input channel. To Dolby, a Program is a related set of audio channels. For example, a 5.1 audio source requires 6 channels and is considered one Program. Consequently, there may be a varying number of Programs available on a given Dolby E bitstream. It is possible to have up to eight Programs on a single bitstream if eight discrete mono channels were encoded.

Note: This menu is visible only if the Dolby Decoder Option is installed.

(17) Dolby Decoder Aux Out	Selections	Selection Descriptions
	Program 1 (default)	Set the Dolby Aux Output to a mixdown of Program 1
	Program 2	Set the Dolby Aux Output to a mixdown of Program 2
	Program 3	Set the Dolby Aux Output to a mixdown of Program 3
	Program 4	Set the Dolby Aux Output to a mixdown of Program 4
	Program 5	Set the Dolby Aux Output to a mixdown of Program 5
	Program 6	Set the Dolby Aux Output to a mixdown of Program 6
	Program 7	Set the Dolby Aux Output to a mixdown of Program 7
	Program 8	Set the Dolby Aux Output to a mixdown of Program 8

Dolby Decoder Aux Mode

The Dolby Decoder outputs eight channels of decoded audio, plus an additional Aux output which is a 2-channel (stereo) mixdown of one of the selected Dolby Programs. This selection determines how the Aux mixdown is produced. Lt/Rt produces a stereo mixdown which takes rear surround channels into account (when available).

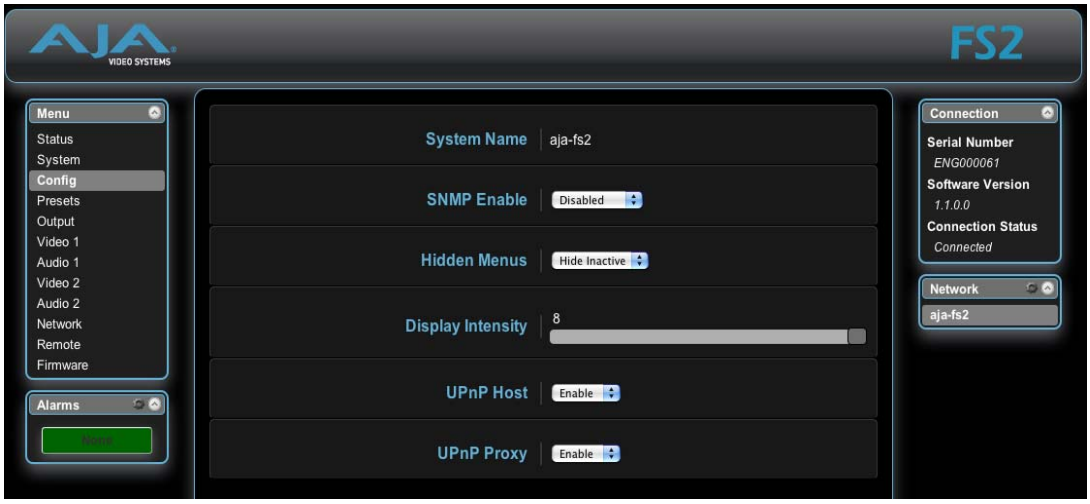
Selecting *Lo/Ro* produces a stereo mixdown using only the front channels, *Mono* produces a mono mixdown, and *Mute* produces full quality, high fidelity silence.

Note: This menu is visible only if the Dolby Decoder Option is installed.

(18) Dolby Decoder Aux Mode Lt/Rt	Selections	Selection Descriptions
	Lt/Rt Lo/Ro Mono Mute	Produces an Aux stereo mixdown including the rear surround channels. Produces an Aux stereo mixdown using only the front channels. Produces an Aux mono mixdown. Produces full quality high fidelity silence.

Config Screen

The *Config* screen includes functions to hide or show unused menus and change the front panel display brightness.



FS2 Web Interface, Config Screen

System Name

The System Name parameter sets the name of the FS2 system. To change the System Name, click on and drag the cursor across the displayed name, and type in a new name.

(1) System Name	Selections	Selection Descriptions
	Variable	Highlight the existing name and type in a new name, up to 20 characters. Allowed characters are A-Z, a-z, numerals, hyphen, and period.

SNMP Enable

The *SNMP Enable* parameter turns ON and OFF all SNMP messaging between the FS2 and an external client. Refer to *Chapter 6* for a description of SNMP and how the

FS2 supports it. When SNMP is enabled, one or more of these alarms may be sent by the FS2 as a trap message:

- Power supply failure or disconnection: FS2PSAlarm (see parameter *5*)
- Reference video: FS2REFAlarm (see parameter *60.4*)
- Format: FS2FMT1Alarm for Vid1 (see parameter *6.1*)
- Format: FS2FMT2Alarm for Vid2 (see parameter *6.2*)
- Format—Background Jam: FS2JAM1Alarm for Vid1 (see parameter *6.1*)
- Format—Background Jam: FS2JAM1Alarm for Vid2 (see parameter *6.2*)
- Temperature of FS2 is over limit (internally): FS2OVRAlarm

(4.0) SNMP Enable	Selections	Selection Descriptions
	Disable *(default)* Enable 1 Enable Both	When set to *Disable*, the FS2 will not issue SNMP trap messages. When set to *Enable 1*, the FS2 issues SNMP trap messages to Trap Destination 1 (parameter *4.1*) and as defined in the MIB. When set to *Enable Both*, the FS2 issues SNMP trap messages to Trap Destination 1 and 2 (parameters *4.1* and *4.3*) and as defined in the MIB.

SNMP Trap Destination 1

This parameter determines the *SNMP Trap Destination* IP address where trap messages issued by the FS2 will be sent. This parameter is available only if parameter *4.0 SNMP Enable* is set to *On*.

(4.1) SNMP Trap Dest 1	Selections	Selection Descriptions
	Variable	Set the desired IP address where traps will be sent (usually a client on your LAN). (See the note below for instructions.) *Default:* 192.168.0.3

Note: Set the IP address octets (numbers between periods) as follows:
Push *ADJUST* momentarily to enter edit mode.
Turn *SELECT* to select the octet you want to edit, indicated by blinking.
Turn *ADJUST* to enter the new value.
Push *ADJUST* momentarily to save and activate the new setting.

If you need to revert to the previous setting (undo changes), push *SELECT*. If you want to revert to the default value, hold down *ADJUST* for 4 seconds.

SNMP Trap Port 1

This parameter determines the *SNMP Trap Port 1* used for sending destination #1 trap messages. UDP Port 162 is the default used for SNMP trap messages. However, if this port is being used by another protocol or service, you can change the setting by modifying this parameter. This parameter is available only if parameter *4.0 SNMP Enable* is set to *On*.

(4.2) SNMP Trap Port 1	Selections	Selection Descriptions
	Variable	Turn the *ADJUST* knob to select a UDP port for sending FS2 trap messages. *Default:* 162

Note: The *SNMP Trap Port* number does not blink when changed (as does the Trap Destination IP address); if you change the port number and exit the parameter, the port changes immediately to the new value.

SNMP Trap Destination 2

This parameter determines the secondary *SNMP Trap Destination* IP address where trap messages issued by the FS2 will be sent (if desired). This parameter is available only if parameter *4.0 SNMP Enable* is set to *On*.

(4.3) SNMP Trap Dest 2	Selections	Selection Descriptions
	Variable	Set the desired IP address where traps will be sent (usually a client on your LAN). (See the note in 4.2 for instructions.) *Default:* 192.168.0.3

Note: Set the IP address octets (numbers between periods) as follows:
Push *ADJUST* momentarily to enter edit mode.
Turn *SELECT* to select the octet you want to edit, indicated by blinking.
Turn *ADJUST* to enter the new value.
Push *ADJUST* momentarily to save and activate the new setting.

If you need to revert to the previous setting (undo changes), push *SELECT*. If you want to revert to the default value, hold down *ADJUST* for 4 seconds.

SNMP Trap Port 2

This parameter determines the *SNMP Trap Port* used for sending destination #2 trap messages. UDP Port 162 is the default used for SNMP trap messages. However, if this port is being used by another protocol or service, you can change the setting by modifying this parameter. This parameter is available only if parameter *4.0 SNMP Enable* is set to *On*.

Hidden Menus This selection lets you choose whether to hide or show inactive menus.

(8) Hidden Menus	Selections	Selection Descriptions
	Show All Hide Inactive	Shows all menus, even those that are not in use. Hides menus that are not in use. *Default:* Hide Inactive

Display Intensity *Display Intensity* determines alphanumeric display and front panel LED brightness.

(9) Display Intensity	Selections	Selection Descriptions
	Variable	Use the slider to dim or brighten the alphanumeric display and activity indicator LEDs in steps from 1 (dim) to 8 (brightest). *Default:* 6

UPnP Host *UPnP Host* enables the FS2 to be discovered by a Windows network.

UPnP Host	Display	Description
	Enable *(default)* Disable	Enables the FS2 to be discovered by a Windows network. Disables Windows network discovery of the FS2.

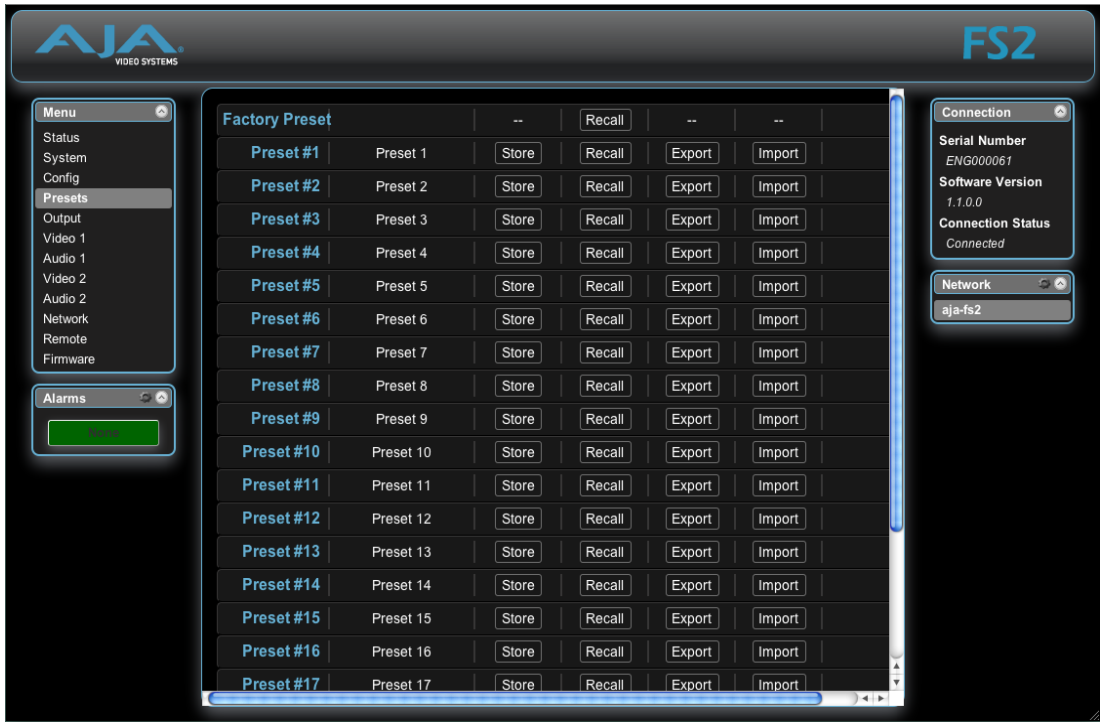
When this parameter is enabled, you can view the FS2 on a Windows Network by clicking these selections in Windows 7: *Start* > *Computer* > *Network* (in left pane). Any FS2s on the network will be listed under *Other Devices* below *Computers* and *Media Devices*. If your system does not have network discovery enabled, you may need to enable it following the Windows help instructions to make network devices visible in the Windows Network window.

UPnP Proxy *UPnP Proxy* enables the FS2 to serve as a proxy for other AJA devices, allowing them to be discovered on a Windows network through the FS2. When enabled, the FS2 acts as a proxy for all the AJA devices that it is able to connect to that have not already been discovered on the network. The devices will be listed in the FS2 Network window. Once the devices appear on the network, they can connect directly to other devices and computers without involving the FS2.

UPnP Proxy	Display	Description
	Enable *(default)* Disable	Enables the FS2 to connect other AJA devices to the network. Disables the FS2 from serving as a proxy for AJA devices.

Presets Screen

The *Presets* screen allows you to save FS2 Preset Configurations into 20 separate memory registers and recall the presets whenever needed. This screen also includes Export and Import functions that allow exporting one or all FS2 presets to your computer as files and importing exported preset files from your computer. A displayed message indicates successful or failed saves, recalls, exports, and imports.


FS2
Menu
Status
System
Config
Presets
Output
Video 1
Audio 1
Video 2
Audio 2
Network
Remote
Firmware
Alarms
Factory Preset -- Recall -- --
Preset #1 Preset 1 Store Recall Export Import
Preset #2 Preset 2 Store Recall Export Import
Preset #3 Preset 3 Store Recall Export Import
Preset #4 Preset 4 Store Recall Export Import
Preset #5 Preset 5 Store Recall Export Import
Preset #6 Preset 6 Store Recall Export Import
Preset #7 Preset 7 Store Recall Export Import
Preset #8 Preset 8 Store Recall Export Import
Preset #9 Preset 9 Store Recall Export Import
Preset #10 Preset 10 Store Recall Export Import
Preset #11 Preset 11 Store Recall Export Import
Preset #12 Preset 12 Store Recall Export Import
Preset #13 Preset 13 Store Recall Export Import
Preset #14 Preset 14 Store Recall Export Import
Preset #15 Preset 15 Store Recall Export Import
Preset #16 Preset 16 Store Recall Export Import
Preset #17 Preset 17 Store Recall Export Import
Connection
Serial Number
ENG000061
Software Version
1.1.0.0
Connection Status
Connected
Network
aja-fs2

FS1 Web Interface, Presets Screen

Factory Preset

Factory Preset recalls all editable video and audio parameters to their factory default settings. Individual presets, user preferences, and Network settings, such as the IP Address, are not affected.

Recall

The *Recall* buttons recall saved FS2 preset configurations.

> **Caution:** *When you recall a Preset Configuration, the recalled preset immediately replaces the system's existing configuration. All previous settings are lost unless you have previously stored them in another preset configuration or an exported file.*

Store

The *Store* buttons let you save the current FS2 configuration into the preset register with the associated name and number. A preset is a set of all System, Video, Audio, and Output parameters as they were set at the time the preset was stored. Only editable parameters are saved in the presets. Non-editable parameters are ***not*** saved.

To change a preset name, click in the name's text field and type a new name.

Export

The *Export* buttons save the associated preset contents to a file on your computer. The file gets exported to the default download location specified in your browser options. The file name is the same as the preset name with the suffix *.presets*. If you export multiple files for the same preset, a number gets appended to ensure a unique file name. The file size is small, usually less than 100 kilobytes.

Import

The *Import* buttons let you browse for and import a preset file on your computer into the preset register associated with the selected button. A dialog box warns you that **the operation will overwrite the current preset contents** with the file contents.

Export Presets 1–20 (All)

Export All lets you save the contents of all presets to a file on your computer.

The file gets exported to the default download location specified in your browser options with the name *all.presets*. If you export multiple files, a number gets appended to ensure a unique file name.

Import Presets 1–20 (All)

Import All lets you browse for and import a previously exported *all.presets* file from your computer. A dialog box warns you that **the operation will overwrite all 20 current preset contents** with the contents stored in the file.

Interaction of Presets and GPIs

If you use a GPI input trigger to recall a preset, the recall changes the *GPI IN Response* setting to whatever *GPI IN Response* setting the preset contains. This feature offers both the power of serial recalls and the possibility of triggering a recall that changes *GPI IN Response* to something unintended, as the following examples explain.

Example of a Serial Recall

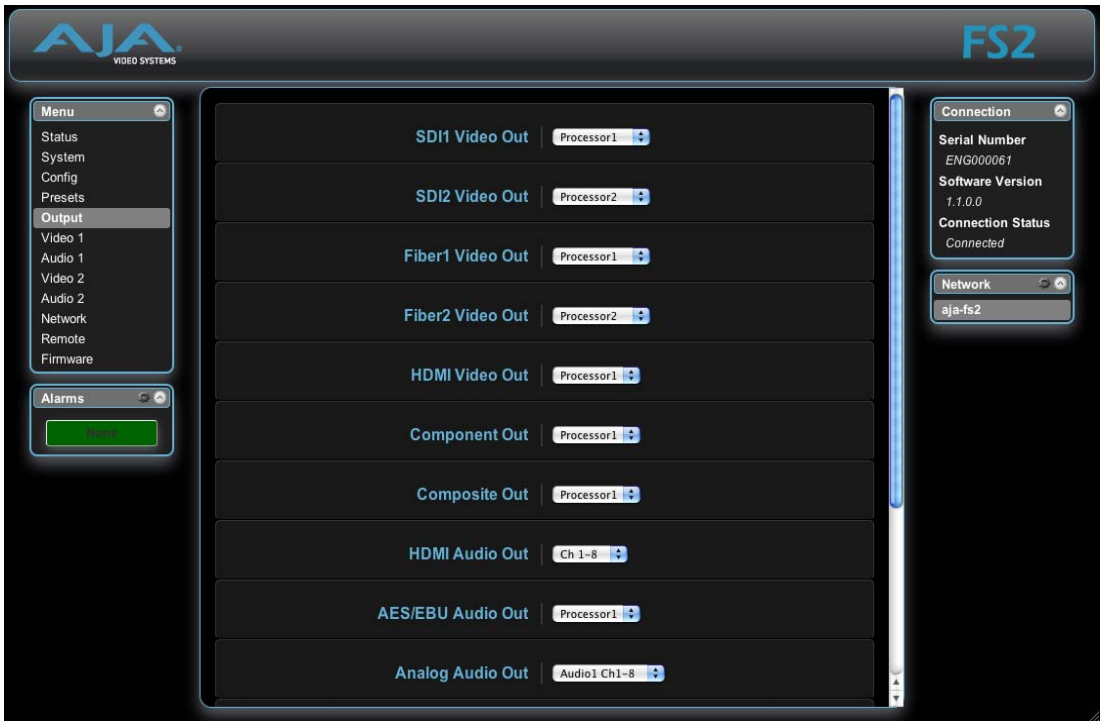
The advantage of using *GPI IN Response* with presets is that you can trigger a series or even a looping series of preset recalls. For example, suppose *GPI IN 1 Response* in Preset 1 is set to Preset 2, and *GPI IN Response* in Preset 2 is set to Preset 1. Triggering the GPI will toggle between the two presets.

Example of an Unintended Recall

Suppose you trigger *GPI IN 1* while the current *GPI IN 1 Response* parameter is set to Preset 1. This recalls Preset 1 as expected. However, suppose Preset 1 contains a stored *GPI IN 1 Response* setting of *No Action*. If you trigger GPI IN 1 later, expecting to recall Preset 1 again, the FS2 instead performs *No Action*. To prevent unexpected changes in the *GPI IN Response* parameters, set these parameters as desired before storing presets; in the example, set *GPI IN 1* to Preset 1 before you store Preset 1.

Output Screen

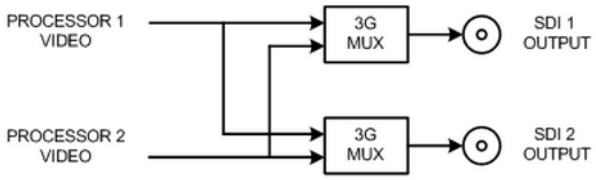
The Audio and Video I/O screen sets the formats of the audio and video outputs routed to the rear panel connectors.



FS2 Web Interface, Output Screen

SDI1 Video Output

SDI1 Video Out selects which video processor output is sent out the *SDI 1* output. The default is to send the output of Processor 1 to SDI1 Out. The *Proc1+Proc2* selection multiplexes two separate 1.5 Gb HD video signals from both video processor outputs into a Dual Stream 3G SDI output as illustrated below. This selection will only make valid video if both video processors are set to output the same HD video format and that format is not 1080p50/60.



Dual Stream 3G Mode Output

(1.1) SDI1 Video Out	Selections	Selection Descriptions
	Processor1 *(default)* Processor2 Proc1+Proc2	Sends the output of Processor 1 to the SDI1 output. Sends the output of Processor 2 to the SDI1 output. Sends multiplexed Proc 1 & 2 to the SDI1 output (Dual Stream 3G).

SDI2 Video Out

SDI2 Video Out selects which video processor output is sent to the *SDI2* output. The default is to send the output of Processor2 to SDI2 Out. The *Proc1+Proc2* selection multiplexes two separate 1.5 Gb HD video signals from both video processor outputs into a Dual Stream 3G SDI (muxed) output. This selection will only produce valid video if both video processors are set to output the same HD video format and that format is not 1080p50/60. See *SDI1 Video Output* for an illustration.

(1.2) SDI2 Video Out	Selections	Selection Descriptions
	Processor1 Processor2 *(default)* Proc1+Proc2	Sends the output of Processor 1 to the SDI2 output. Sends the output of Processor 2 to the SDI2 output. Sends multiplexed Proc 1 & 2 to the SDI2 output (Dual Stream 3G).

Fiber1 Video Out

Fiber1 Video Out selects which video processor output is sent to the optional *Fiber1* output. The default is to send the output of Processor 1 to Fiber1 Out. The *Proc1+Proc2* selection multiplexes two separate 1.5 Gb HD video signals from both video processor outputs into a Dual Stream 3G SDI (muxed) output. This selection produces valid video only if both video processors are set to the same HD video output format (but not 1080p50/60). See *SDI1 Video Output* for an illustration.

(2.1) Fiber1 Video Out	Selections	Selection Descriptions
	Processor1 *(default)* Processor2 Proc1+Proc2	Sends the output of Processor 1 to the Fiber1 output. Sends the output of Processor 2 to the Fiber1 output. Sends multiplexed Proc 1 & 2 to the Fiber1 output (Dual Stream 3G.

Fiber2 Video Out

Fiber2 Video Out selects which video processor output is sent to the optional *Fiber2* output. The default is to send the output of Processor 2 to the Fiber2 Output. The *Proc1+Proc2* selection multiplexes two separate 1.5 Gb HD video signals from both video processor outputs into a Dual Stream 3G SDI (muxed) output. This selection will only produce valid video if both video processors are set to output the same HD video format and that format is not 1080p50/60. See *1.1 SDI1 Video Output* for an illustration.

(2.2) Fiber2 Video Out	Selections	Selection Descriptions
	Processor1 Processor2 *(default)* Proc1+Proc2	Sends the output of Processor 1 to the Fiber2 output. Sends the output of Processor 2 to the Fiber2 output. Sends multiplexed Proc 1 & 2 to the Fiber2 output (Dual Stream 3G).

HDMI Video Out

HDMI Video Out selects which video processor output is sent to the *HDMI* output.

(3) HDMI Video Out	Selections	Selection Descriptions
	Video Proc 1 *(default)* Video Proc 2	Selects the output of Video Processor 1 to send to the HDMI1 output. Selects the output of Video Processor 2 to send to the HDMI1 output.

Component Out *Component Out* selects the video processor output to be sent out the *Component* analog output.

(4) Component Out	Selections	Selection Descriptions
	Video Proc 1 *(default)*	Selects Video Processor 1 output to send to the Component output.
	Video Proc 2	Selects Video Processor 2 output to send to the Component output.

Composite Out *Composite Out* selects the video processor output to be sent out the *Composite* analog output. If an HD output is sent to the Composite Output, a separate Downconverter dedicated to the Composite Output will provide an SD output.

(5) Composite Out	Selections	Selection Descriptions
	Video Proc 1 *(default)*	Selects Video Processor 1 output to send to the Composite output.
	Video Proc 2	Selects Video Processor 2 output to send to the Composite output.

HDMI Audio Out *HDMI Audio Out* selects which audio processor output channels (1–8 or 9–16) are embedded in the *HDMI* output. The Audio Processor associated with the selected Video Processor for the HDMI output is used as the audio source (Video Proc 1 = Audio Proc 1, Video Proc 2 = Audio Proc 2); this setting selects which channels of that source are embedded.

(6) HDMI Audio Out	Selections	Selection Descriptions
	Channels 1-8 *(default)*	Selects audio channels 1-8 to embed in the HDMI output.
	Channels 9-16	Selects audio channels 9-16 to embed in the HDMI output.

AES/EBU Audio Out *AESEBU Audio Out* selects the audio processor output to be sent out the *AES/EBU* digital audio output.

(7) AES/EBU Audio Out	Selections	Selection Descriptions
	Processor 1 *(default)*	Selects Audio Processor 1 output to send to the AES/EBU output.
	Processor 2	Selects Audio Processor 2 output to send to the AES/EBU output.

Analog Audio Out

Analog Audio Out selects which group of channels (1–8 or 9–16) from which audio processor output (1 or 2) will be sent to the *Analog Audio* output.

(8) Analog Audio Out	Selections	Selection Descriptions
	Audio1 Ch1-8 *(default)*	Sends Audio Proc1 output Ch1-8 to the Analog Audio output.
	Audio1 Ch9-16	Sends Audio Proc1 output Ch9-16 to the Analog Audio output.
	Audio2 Ch1-8	Sends Audio Proc2 output Ch1-8 to the Analog Audio output.
	Audio2 Ch9-16	Sends Audio Proc2 output Ch9-16 to the Analog Audio output.

SDI1 3G Config

The *SDI1 3G Config* parameter determines how 1080p50/60 signals are formatted for the SDI 1 output. The first two choices select either "Level A" or "Level B" as described in the SMPTE 425 standard. The third selection ties SDI 1 Out and SDI 2 Out together into a single 1.5 Gb Dual-link 1080p50/60 output. In this case, the SDI2 Video Out and SDI2 Audio Out selections are ignored.

(9.1) SDI1 3G Config	Selections	Selection Descriptions
	3 Gb-Level A *(default)*	Formats 3G SDI Output as Level A.
	3 Gb Level-B	Formats 3G SDI Output as Level B.
	1.5 Gb Dual Link	Formats SDI 1 and SDI 2 as 1.5Gb "Dual Link."

SDI2 3G Config

The *SDI2 3G Config* parameter determines how 1080p50/60 signals are formatted for the SDI 2 output. The two choices select either "Level A" or "Level B" as described in the SMPTE 425 standard. (If the SDI1 selection is *Dual Link*, these SDI2 settings are ignored because the SDI 2 output is used for dual link.)

(9.2) SDI2 3G Config	Selections	Selection Descriptions
	3 Gb-Level A *(default)*	Formats 3G SDI Output as Level A.
	3 Gb-Level B	Formats 3G SDI Output as Level B.

Fiber1 3G Config The *Fiber1 3G Config* parameter determines how 1080p50/60 signals are formatted for the Fiber 1 output. The first two choices select either "Level A" or "Level B" as described in the SMPTE 425 standard. The third selection ties Fiber 1 Out and Fiber 2 Out together into a single 1.5 Gb Dual-link 1080p50/60output. In this case, the Fiber2 Video Out and Fiber2 Audio Out selections are ignored.

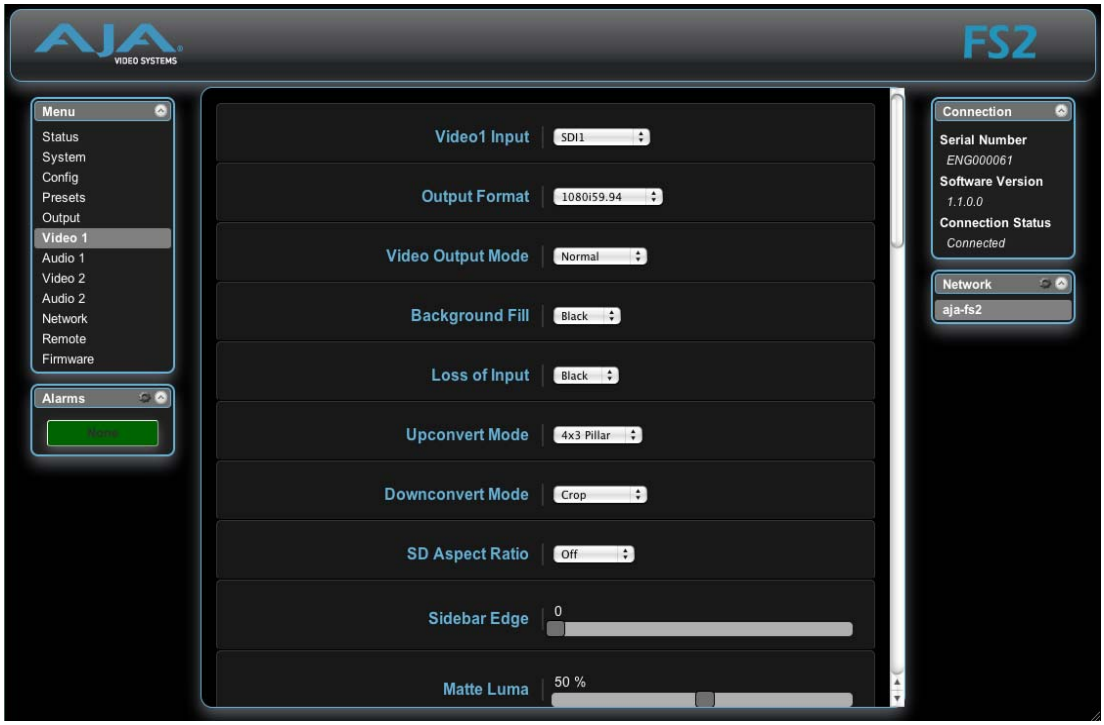
(10.1) Fiber1 3G Config	Selections	Selection Descriptions
	3 Gb-A *(default)* 3 Gb-B 1.5 Gb Dual Link	Sends 3 Gb format A 1080p 50/60 to the Fiber1 output. Sends 3 Gb format B 1080p 50/60 to the Fiber1 output. Sends dual-link 1.5 Gb 1080p 50/60 to the Fiber1 and Fiber2 outputs. As the term "dual-link" implies, the signals and outputs are tied together.

Fiber2 3G Config The *Fiber2 3G Config* parameter determines how 1080p50/60 signals are formatted for the Fiber 2 output. The two choices select either "Level A" or "Level B" as described in the SMPTE 425 standard. (If the Fiber1 selection is *Dual Link*, these Fiber2 settings are ignored because the Fiber 2 output is used for dual link.)

(10.2) Fiber2 3G Config	Selections	Selection Descriptions
	3 Gb-Level A *(default)* 3 Gb-Level B	Formats 3G SDI Output as Level A. Formats 3G SDI Output as Level B.

Video 1 & 2 Screens

The following descriptions explain the Video 1 and 2 browser screens. Because the selections for the video processors are identical, both are described here.



FS2 Web Interface, Video 1 & 2 Screens

Video Input

The *Video Input* setting performs input video source selection for the selected Video Processor (1 or 2). Multiple input sources are available at the connectors on the FS2 rear panel, but the active input source routed to the selected Video Processor is the one you select here.

(1) Video Input	Selections	Selection Descriptions
	SDI1 *(default)*	Select SDI1 as the input source.
	SDI2	Select SDI2 as the input source.
	SDI DualLink	Select SDI DualLink mode, linking both SDI inputs as the input source.
	Fiber1	Select Fiber1 as the input source.
	Fiber2	Select Fiber2 as the input source.
	Fiber DualLink	Select Fiber DualLink mode, linking both Fiber inputs as the input sources.
	HDMI	Select the HDMI input as the input source.
	Composite	Select Composite as the input source.
	Component	Select Component as the input source.

Notes:

1. **Source Memory**—Changing the *Video Input* selection automatically selects new values for Proc Amp settings. Each video source remembers its own Proc Amp settings. This is referred to as Source Memory.

2. **Audio Source Memory**— If *Audio Follow Video* is set to *On*, changing the *Video Input* selection will also automatically select new values for all audio parameters associated with *Audio Follow Video* (see the list provided in the description of *Audio Follow Video*). Audio Source Memory is enabled only when *Audio Follow Video* is set to *On*.
3. **Dual Link**—Dual Link referred to here is 1080p50/59.94 on two 1.5 Gb HD-SDI connections. Selecting *Dual Link* as the Video Input for Video Processor 1 or 2 will allocate both SDI Inputs for Dual Link use. Both Processors can use the Dual Link Input, or if only one Processor is using it, the other Processor is free to select another input. The Fiber inputs operate the same way.
4. **I/O Limitations**—Some frame rates are not available at the inputs or outputs with the current software release. Additional frame rates will be supported in a future release. Please see the Appendix A Specifications for affected frame rates.

Output Format

The *Output Format* setting defines the output format of the Video Processor (1 or 2). The scan format (progressive or interlaced) is set by the *Video Input Scan Format* setting. The frame rate is set by the *Frame Rates* setting.

(2) Output Format	Selections	Selection Descriptions
	Follow INPUT *(default)*	Follow the format of the selected input.
	Follow REF	Follow the format of the reference input (Ref).
	525/625<frame rate>	Select 525/625 SD as the Video Processor output.
	720p<frame rate>	Select 720p HD as the Video Processor output.
	1080i<frame rate>	Select 1080i HD as the Video Processor output.
	1080PsF<frame rate>	Select 1080PsF HD as the Video Processor output.
	1080p<frame rate>	Select 1080p HD as the Video Processor output.
	2K1080p<frame rate>	Select 2K1080p HD as the Video Processor output.

Notes:

1. **Output Format Selection Constraint**—Available frame rates depend on *System 9 Frame Rates* parameter setting.
2. **Output Follow Ref Exception**—If the *Output Format* is set to *Follow Ref*, and the *Genlock Source* is set to *Input*, and the *Video Input* is set to select one of the analog inputs, the output format will follow the input format rather than the format of the signal on the *Ref BNC* as might be expected. (This combination of settings effectively disconnects the *Ref BNC*.)
3. **Output Timing Memory**—Changing the *Output Format* selection automatically selects new values for H & V timing parameters (*Output Timing H*, *Output Timing V* and *Analog Output Fine*). Each Output Format mode remembers its own H and V timing settings.
4. **Output Format Mapping**—The *Output Format* selection is remembered for each of the frame rates. If you change the frame rate selection, the Output Format associated with the newly selected frame rate is recalled.
5. **I/O Limitations**—Some frame rates are not available at the inputs or outputs with the current software release. Additional frame rates will be supported in a future release. Please see the Appendix A Specifications for affected frame rates.

Video Output Mode

The selection determines the final video output of the Video Processor. Alarms occur if conflicting video formats are selected.

(3) Video Output Mode	Selections	Selection Descriptions
	Normal (*default)* Test Pattern	Video output from the UFC. Video output from the test pattern generator.

Background Fill

Background Fill selects the background source used to fill any part of the UFC output raster not filled with video from the main input video. For the Video Processor 1 menu, the second selection is *Video 2*. For the Video Processor 2 menu, the second selection is Video 1. Using this feature, you can key *Video 2* into *Video 1* or vice versa.

(4) Background Fill	Selections	Selection Descriptions
	Black (*default*) Video 1/2 Matte	Selects black as the background fill video. Selects Vid1/2 as the background fill video. Selects matte as the background fill video.

Loss of Input

Loss of Input selects the automatic action that occurs if the video input is lost. The *Black* selection (default) cuts the video to black. The *Freeze* selection freezes video on the last available frame.

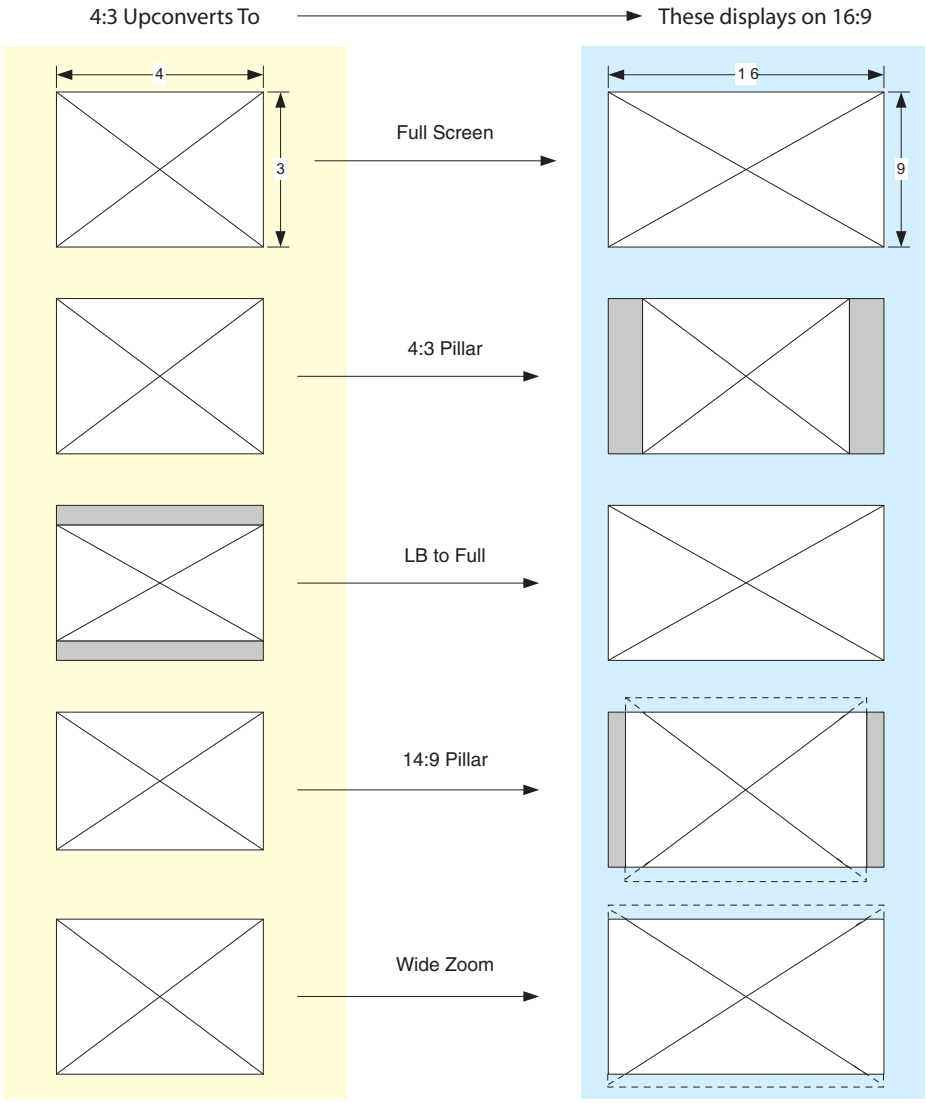
(5) Loss of Input	Selections	Selection Descriptions
	Black (*default*) Freeze	Switches to black if input video is lost. Freezes on the last available video frame if input is lost.

Upconvert Mode

Upconvert Mode selects the type of Upconversion the Video Processor performs on the selected SD source input. This parameter is in effect only when the input is SD (525i or 625i) and the selected output format is HD (720p, 1080i, or 1080p), or when the input is HD (720p, 1080i, or 1080p) and the output is 2K (2048 x 1080). When upconverting to 2K, the selections do not precisely describe the resulting picture. For example, 4x3 pillar is not precisely 4x3, and 14x9 is not precisely 14x9. However, picture scaling is such that the visual effect closely resembles an SD-to-HD upconvert.

(6) Upconvert Mode	Selections	Selection Descriptions
	4x3 Pillar 14x9 Pillar *(default)* Full Screen LB to Full Wide Zoom	Results in 4x3 image at center screen with black sidebars. Results in 14x9 image, zoomed slightly to fill a 14x9 image with black sidebars. Anamorphic full screen display. Image is zoomed to fit the full screen (letterbox). Using a combination of zoom and stretch, the image is sized to fit a 16x9 screen (this can introduce a small aspect ratio change).

Upconvert Illustrations



Downconvert Mode

Downconvert Mode selects the type of Downconversion performed by the Video Processor on the selected HD source input. See the following Downconvert Illustrations for Downconversion examples. This parameter is in effect only when the input is HD (720p, 1080i, or 1080p) and the selected output format is SD (525i or 625i), or when the input is 2K (2048 x 1080)and the output is HD (720p, 1080i, or 1080p). When downconverting from 2K, the selections do not precisely describe the resulting picture. For example, 14x9 is not precisely 14x9. However, picture scaling is such that the visual effect closely resembles an HD-to-SD downconvert.

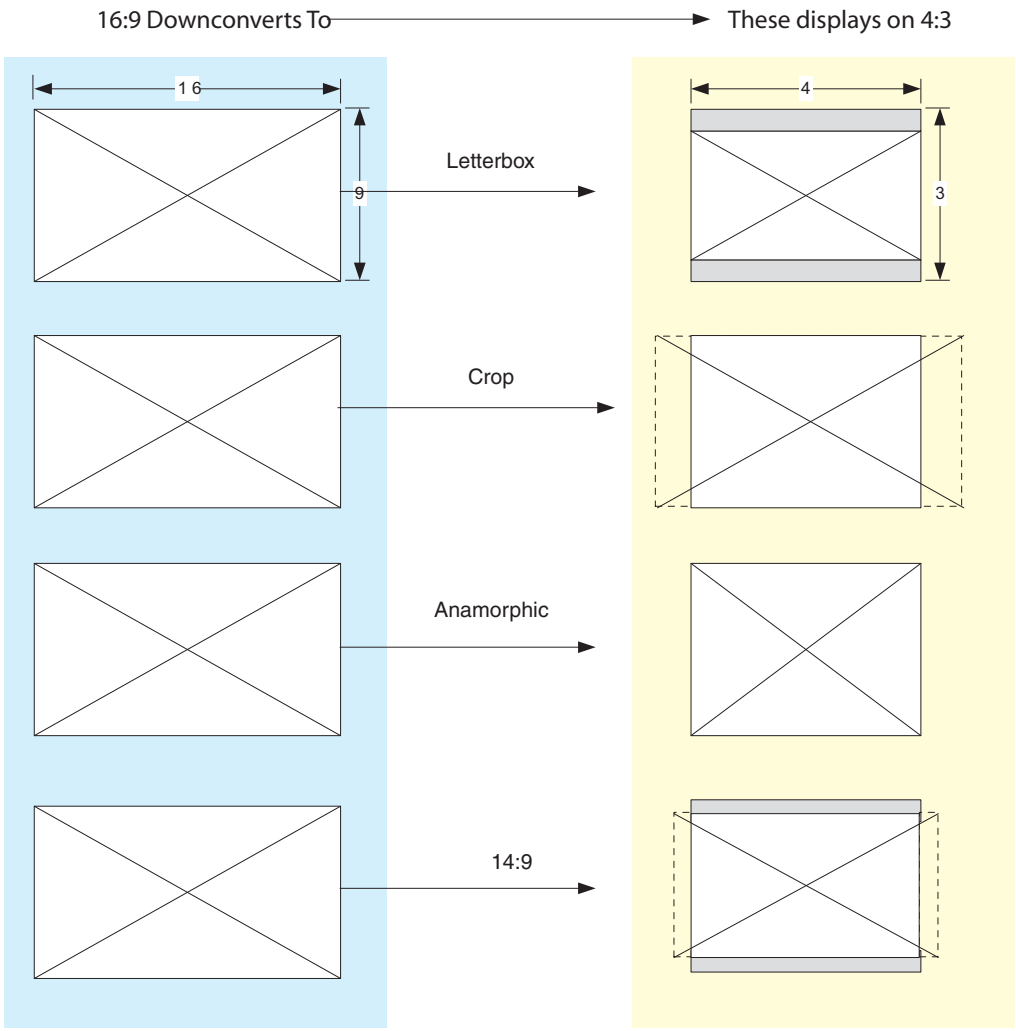
(7) Downconvert Mode	**Selections**	**Selection Descriptions**
	Crop	Image is cropped to fit new screen size.
	Anamorphic	HD image is converted to full-screen SD with a 16x9 aspect ratio (anamorphic).
	14:9	Image is reduced slightly with aspect ratio preserved. Black is added top and bottom, and the left and right sides are cropped.
	Auto AFD	Automatically selects the best Downconvert mode based on the input video's Active Format Description (AFD) code. If the input video is not carrying an AFD VANC code, the Downconverter defaults to the mode specified in parameter menu *16.3 Downconvert AFD Default*.
	Letterbox *(default)*	Image is reduced with black top and bottom added to image area, with the aspect ratio preserved.

Note: Active Format Description (AFD) codes are carried in the vertical ancillary (VANC) portion of HD SDI video signals, specified in SMPTE 2016 as follows: "AFD information is intended to guide DTV receivers and/or intermediate professional video equipment regarding the display of video of one aspect ratio on a display of another aspect ratio."

In the FS2 Downconverter, the AFD code on the video input can be used to guide the Downconverter in choosing which mode to use to best display the important content of the input 16:9 HD video on the 4:3 SD output. For example, if the input AFD code is 10 (Full Frame), it means that the input video has important picture information throughout the full 16:9 frame, so the Downconverter should use Letterbox mode to be sure none of the content is cropped off. An AFD code of 9 (Pillarbox) says that the input video only has content within the center 4:3 area of the picture (usually because it originally came from an Upconverted SD signal) so the Downconverter Crop mode would be the best choice. There are 16 possible HD AFD codes, of which 8 are in common use. The FS2 does not process or use SD AFD codes.

FS2 AFD processing (passing, removing, and re-inserting) occurs based on the AFD settings on these screens (Video 1 & 2).

Downconvert Illustrations

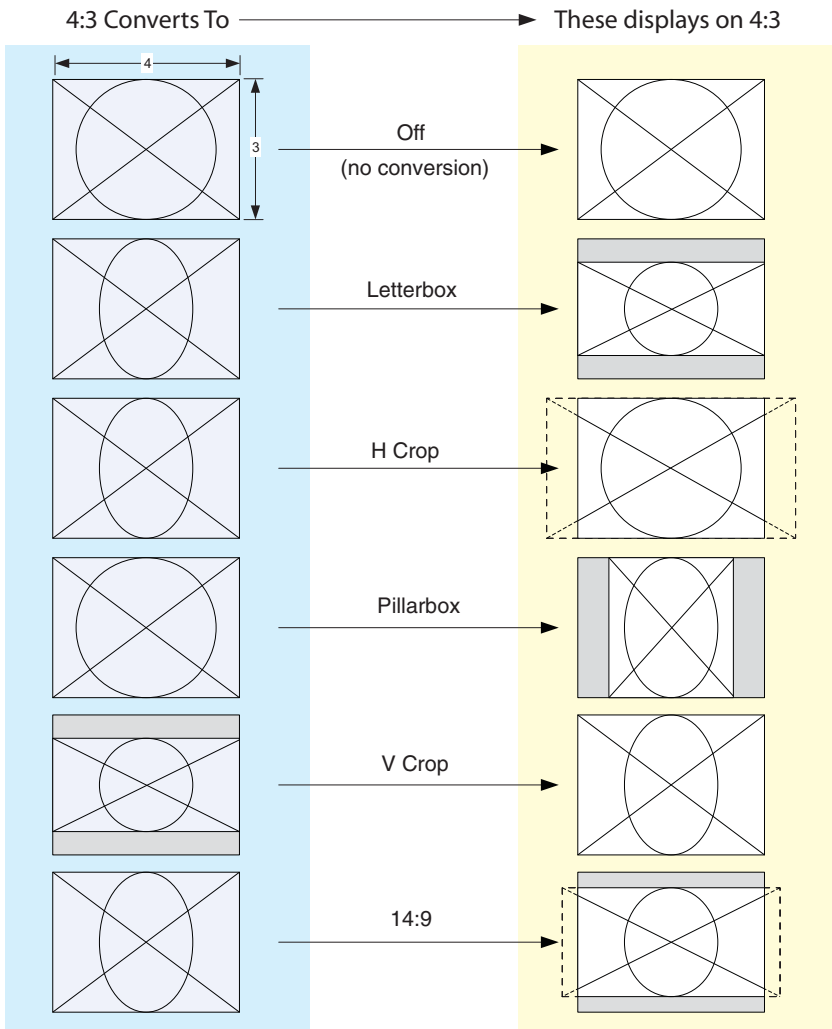


SD Aspect Ratio

SD Aspect Ratio selects the type of SD-to-SD Aspect Ratio Conversion (ARC) performed on an incoming selected SD source. This parameter is in effect only when the input and output are both SD (525i or 625i). (In Europe 16:9 anamorphic video is also known as "wide screen" video.)

(8) SD Aspect Ratio	Selections	Selection Descriptions
	Off *(default)*	Turns aspect ratio conversion *Off*.
	Letterbox	Converts 16:9 Anamorphic video to Letterbox video.
	H Crop	Converts 16:9 Anamorphic video to 4:3 Standard video (crops left and right edges of video).
	Pillarbox	Converts 4:3 Standard video to 16:9 Anamorphic video.
	V Crop	Converts Letterbox video to 16:9 Anamorphic video.
	14:9	Converts 16:9 Anamorphic video to 14:9 Cropped video.

SD Aspect Ratio Conversion Illustrations



Sidebar Edge

Sidebar Edge, which is hidden if *Video Output* is not set to *Sidebars*, adjusts the sidebar position where the center video meets the pillarbox background video on both sides. The underlying hardware feature is the same as *Custom Right Crop* and *Custom Left Crop*. This is effectively an extra handle on the *Left Crop* and *Right Crop* settings.

The *Crop* and *Sidebar Edge* controls are additive; increasing Sidebar Edge (making the sidebars larger and the center-video smaller), equates to setting *Left* and *Right Crop* values to smaller percentages. The *Sidebar Edge* can be set to *0 through +128*. A value of *0* produces a 4:3 center. Positive values produce wider sidebars (and a narrower center).

(9) Sidebar Edge	Selections	Selection Descriptions
	0 *(default)* 0 to +128 (Variable)	Defaults to 0. Using the *ADJUST* knob, step through and select a width value from 0 through +128 to expand or shrink the sidebars, which are filled with Background video (*4 Background Fill)*. Selecting a larger value causes the center picture to become narrower while the sidebars expand.

Matte Luma

This parameter determines the Matte Luma level of the background fill.

(10.1) Matte Luma	Selections	Selection Descriptions
	50% (*default*) 0–100% (Variable)	Sets the matte luminance level to the default 50% value. Sets the matte luminance level from 0–100%.

Matte Chroma

This parameter determines the Matte Chroma level of the background fill.

(10.2) Matte Chroma	Selections	Selection Descriptions
	50% (*default*) 0–100% (Variable)	Sets the matte chrominance level to the default 50% value. Sets the matte chrominance level from 0–100%.

Matte Hue

This parameter determines the Matte Hue of the background fill.

(10.3) Matte Hue	Selections	Selection Descriptions
	0 degrees (*default*) 0–359 degrees (Variable)	Sets the matte hue to the default 0 degrees (red). Sets the matte hue to a value between 0 and 359 degrees. As you turn the ADJUST knob, it wraps from 359 back to 0 degrees.

Proc Amp (YUV) *Proc Amp* turns the Proc Amp *On* and *Off* for signals composed of YUV components. When it is *On*, you can adjust additional settings to control video *Gain*, *Black Level*, *Hue*, and *Saturation*. When *Off*, the additional settings are hidden. Proc Amp parameter settings are independently kept for each separate input: *SDI 1*, *SDI 2*, *Fiber 1, Fiber 2, Composite*, *HDMI*, and *Component*.

Note: Source Memory—Independent analog output timing values are kept for all available output formats.

(11.0) YUV Proc Amp	Selections	Selection Descriptions
	Off (*default*) On	Sets the YUV Proc Amp to Off. Sets the YUV Proc Amp to On.

Proc Amp Gain *Proc Amp Gain* adjusts the video gain from black to 1.5 times luma in steps of .01.

(11.1) Proc Amp Gain	Selections	Selection Descriptions
	Variable	Adjusts Proc Amp Gain from zero to 1.5 in .01 steps. *Default (unity):* 1.0

Proc Amp Black *Proc Amp Black* adjusts the video black level from -20 IRE to +20 IRE in 0.5 steps.

(11.2) Proc Amp Black	Selections	Selection Descriptions
	Variable	Adjusts Proc Amp Black level from -20 IRE to +20 IRE in 0.5 steps. *Default (unity):* 0 IRE

Proc Amp Hue *Proc Amp Hue* adjusts the video color hue through 360 degrees (color wheel). Steps increment or decrement by 1 degree.

(11.3) Proc Amp Hue	Selections	Selection Descriptions
	Variable	Adjusts Proc Amp Hue from -179 to +180 in steps of 1 degree. *Default (unity):* 0 degrees

Proc Amp Sat *Proc Amp Sat* adjusts the video color saturation from black and white to 1.5 times chroma in steps of .01.

(11.4) Proc Amp SAT	Selections	Selection Descriptions
	Variable	Adjusts Proc Amp Saturation from 0 (black & white) to 1.5 (Chroma) in steps of 0.01. *Default:* 1.0

Color Corrector (RGB)

Color Corrector turns the RGB Color Corrector *On* and *Off*. When it is *On*, you can set additional adjustments to control video *Gain*, *Black Level*, and *Gamma*. When *Color Corrector* is set to *Off*, all RGB color settings are programmed for unity (or bypass), and the additional settings are hidden on this screen.

Note: Source Memory—Color Corrector values are independently kept for each separate input: *SDI 1*, *SDI 2*, *Fiber 1*, *Fiber 2*, *Composite*, *HDMI*, and *Component*.

(12.0) Color Corrector (RGB)	Selections	Selection Descriptions
	Off (*default*) On	Sets the Color Corrector to Off. Sets the Color Corrector to On, enabling additional color adjustments.

Color Red Gain

Color Red Gain adjusts the *RGB Red Gain* from zero to 1.5 times in 0.01 increments.

(12.1) Color Red Gain	Selections	Selection Descriptions
	Variable	Adjusts Red Gain from zero to 1.5 in 0.01 steps. *Default (unity):* 1.0

Color Red Black Level

Color Red Black Level adjusts the *RGB Red Black* level from -20 IRE to +20 IRE in 0.5 steps.

(12.2) Color Red Black Level	Selections	Selection Descriptions
	Variable	Adjusts Red Black level from -20 IRE to +20 IRE in 0.5 steps. *Default (unity):* 0 IRE

Color Red Gamma

Color Red Gain adjusts the *RGB Red Gamma* by a factor of -1.0 to +1.0 in steps of 0.05.

(12.3) Color Red Gamma	Selections	Selection Descriptions
	Variable	Adjusts Red Gamma level from -1 to +1.0 in 0.05 steps. *Default (unity):* 0

Color Green Gain

Color Green Gain adjusts the *RGB Green Gain* from zero to 1.5 times in 0.01 increments.

(12.4) Color Green Gain	Selections	Selection Descriptions
	Variable	Adjusts Green Gain from zero to 1.5 in 0.01 steps. *Default (unity):* 1.0

Color Green Black Level

Color Green Black Level adjusts the *RGB Green Black* level from -10 IRE to +20 IRE in 0.5 steps.

(12.5) Color Green Black Level	Selections	Selection Descriptions
	Variable	Adjusts Red Black level from -20 IRE to +20 IRE in 0.5 steps. *Default (unity):* 0 IRE

Color Green Gamma

Color Green Gamma adjusts the *RGB Green Gamma* by a factor of -1.0 to +1.0 in steps of 0.05.

(12.6) Color Green Gamma	Selections	Selection Descriptions
	Variable	Adjusts RGB Red Gamma level from -1 to +1.0 in 0.05 steps. *Default (unity):* 0

Color Blue Gain

Color Blue Gain adjusts the *RGB Blue Gain* from zero to 1.5 times in 0.01 increments.

(12.7) Color Blue Gain	Selections	Selection Descriptions
	Variable	Adjusts Blue Gain from zero to 1.5 in 0.01 steps. *Default (unity):* 1.0

Color Blue Black Level

Color Blue Black Level adjusts the *RGB Blue Black* level from -10 IRE to +20 IRE.

(12.8) Color Blue Black Level	Selections	Selection Descriptions
	Variable	Adjusts RGB Blue Black level from -20 IRE to +20 IRE in 0.5 steps. *Default (unity):* 0 IRE

Color Blue Gamma

Color Blue Gamma adjusts the *RGB Blue Gamma* by a factor of -1.0 to +1.0 in steps of 0.05.

(12.9) Color Blue Gamma Level	Selections	Selection Descriptions
	Variable	Adjusts RGB Blue Gamma level from -1 to +1.0 in 0.05 steps. *Default (unity):* 0

Custom Size/Pos *Custom Size/Pos* turns custom image settings *On* or *Off*. The custom settings determine the image size and shape for Upconvert and Downconvert modes.

(13.0) Custom Size/Pos	Selections	Selection Descriptions
	Off *(default)* On	Sets this selection and related custom size/pos parameters to off. Enables this selection and related custom size/position parameters.

Custom Size *Custom Size* changes the H and V size of the output picture by the specified percentage (%) while maintaining the current aspect ratio. If *Custom Size/Pos* is *On* and this setting is not unity (100%) for the current mode, the front panel UFC LED lights.

(13.1) Custom Size	Selections	Selection Descriptions
	100% *(default)* 10% to 200%	Maintains 100% picture size for the selected format. Enables changing the picture size using the ADJUST knob.

Custom Size is stored separately for each Conversion Mode. Drag the slider to set the value. Values for each of the Upconvert modes, Downconvert modes (excluding AFD), and SD Aspect Ratio modes (excluding OFF), plus no conversion (or HD CrossConvert), are independently stored (per Vid Proc).

Custom Aspect *Custom Aspect* changes the H/V aspect ratio of the output picture while maintaining the current V size (Aspect < 0) or H size (Aspect > 0). Drag the slider to set the value. If *Custom Size/Pos* is *On* and this setting is not unity (0) for the current mode, the front panel UFC LED lights.

(13.2) Custom Aspect	Selections	Selection Descriptions
	0.000 *(default)* -0.500 to +0.500	Maintains the normal 100% aspect ratio for the selected format. Enables changing the aspect ratio using the ADJUST knob.

Custom H Pos

Custom H Pos changes the H position of the output picture. Drag the slider to set the H position between -100% and +100%. If *Custom Size/Pos* is *On* and this setting is not *Unity* (0%) for the current mode, the front panel UFC LED lights.

(13.3) Custom H Pos	Selections	Selection Descriptions
	0% *(default)* -100% to +100%	Maintains the normal horizontal position of the selected format. Enables changing the horizontal position using the ADJUST knob.

Custom H Position is stored separately for each Conversion Mode. Values for each of the Upconvert modes, Downconvert modes (excluding AFD), and SD Aspect Ratio modes (excluding OFF), plus no conversion (or HD CrossConvert), are independently stored (per Vid Proc).

Custom V Pos

Custom V Pos changes the V position of the output picture. Drag the slider to set the H position between -100% and +100%. If *Custom Size/Pos* is *On* and this setting is not *Unity* (0%) for the current mode, the front panel UFC LED lights.

(13.4) Custom V Pos	Selections	Selection Descriptions
	0% *(default)* -100% to +100%	Maintains the normal 100% vertical position of the selected format. Enables changing the vertical position using the ADJUST knob.

Custom V Position is stored separately for each Conversion Mode. Values for each of the Upconvert modes, Downconvert modes (excluding AFD), and SD Aspect Ratio modes (excluding OFF), plus no conversion (or HD CrossConvert), are independently stored (per Vid Proc).

Custom Left Crop

Custom Left Crop changes the Left picture crop position. Drag the slider to set the position. If *Custom Size/Pos* is *On* and this setting is not unity (100%) for the current mode, the front panel UFC LED lights.

(13.5) Custom Left Crop	Selections	Selection Descriptions
	100% *(default)* +10.0% to +100.0%	Maintains the normal left side position of the selected format. Enables changing the left side position using the ADJUST knob.

Custom Left Crop is stored separately for each Conversion Mode. Values for each of the Upconvert modes, Downconvert modes (excluding AFD), and SD Aspect Ratio modes (excluding OFF), plus no conversion (or HD CrossConvert), are independently stored (per Vid Proc).

Custom Right Crop

Custom Right Crop changes the Right picture crop position. Drag the slider to set the position. If *Custom Size/Pos* is *On* and this setting is not unity (100%) for the current mode, the front panel UFC LED lights.

(13.6) Custom Right Crop	Selections	Selection Descriptions
	100% *(default)* +10.0% to +100.0%	Maintains the normal right side position of the selected format. Enables changing the right side position using the ADJUST knob.

Custom Right Crop is stored separately for each Conversion Mode. Values for each of the Upconvert modes, Downconvert modes (excluding AFD), and SD Aspect Ratio modes (excluding OFF), plus no conversion (or HD CrossConvert), are independently stored (per Vid Proc).

Custom Top Crop

Custom Top Crop changes the Top picture crop position. Drag the slider to set the position. If *Custom Size/Pos* is *On* and this setting is not unity (100%) for the current mode, the front panel UFC LED lights.

(13.7) Custom Top Crop	Selections	Selection Descriptions
	100% *(default)* +10.0% to +100.0%	Maintains the normal top position of the selected format. Enables changing the top position using the ADJUST knob.

Custom Top Crop is stored separately for each Conversion Mode. Values for each of the Upconvert modes, Downconvert modes (excluding AFD), and SD Aspect Ratio modes (excluding OFF), plus no conversion (or HD CrossConvert), are independently stored (per Vid Proc).

Custom Bottom Crop

Custom Bot Crop changes the bottom picture crop position. Drag the slider to set the position If *Custom Size/Pos* is *On* and this setting is not unity (100%) for the current mode, the front panel UFC LED lights.

(13.8) Custom Bottom Crop	Selections	Selection Descriptions
	100% *(default)* +10.0% to +100.0%	Maintains the normal bottom position of the selected format. Enables changing the bottom position using the ADJUST knob.

Custom Bottom Crop is stored separately for each Conversion Mode. Values for each of the Upconvert modes, Downconvert modes (excluding AFD), and SD Aspect Ratio modes (excluding OFF), plus no conversion (or HD CrossConvert), are independently stored (per Vid Proc).

Output Timing H

Output Timing H adjusts Video Processor horizontal output timing with reference to the genlock source already selected. When adjusting the horizontal timing (H), this setting specifies a number of pixels to offset, from zero to full line width. Adjustment range increments from 0 to the width of the line in pixels. This could be 720, 1280, or 1920, depending on the format already chosen.

(14.1) Output Timing H	Selections	Selection Descriptions
	Variable	Adjustment range increments from 0 to the width of the line in pixels. The maximum varies, depending on the format already chosen. *Default:* 0

Note: Output Timing Memory—Independent horizontal and vertical timing values are kept for all available output formats.

Output Timing V

Output Timing V adjusts Video Processor vertical output timing with reference to the genlock source already selected. When adjusting the vertical timing (V), this parameter specifies a number of lines to offset, moving the screen up to a half a frame up or down.

(14.2) Output Timing V	Selections	Selection Descriptions
	Variable	Adjustment range increments from half a frame up to a half a frame down in single line increments. The maximum varies, depending on the format already chosen. *Default:* 0

Note: Output Timing Memory—Independent horizontal and vertical timing values are kept for all available output formats.

Extra Frame Delay

Extra Frame Delay adjusts Video Processor output timing in 1 frame increments from 0 to 6 frames.

(14.4) Extra Frame Delay	Selections	Selection Descriptions
	Variable	Adjustment output timing from 0 to 6 frames down in one frame increments. *Default:* 0

Video Legalizer

Video Legalizer determines the Video Legalizer mode. When set to *Off*, the Video Legalizer is not enabled, and the following clip controls are not active. In *YUV* mode, the *White Clip*, *Black Clip*, and *Chroma Clip* controls are enabled and clip any luma/chroma that exceed the set limits. In *RGB* mode only the *White Clip* and *Black Clip* controls are active and limit the R, G, and B values to those settings. RGB mode requires the video to pass through the RGB Proc Amp to be converted to and from RGB.

(15.0) Video Legalizer	Selections	Selection Descriptions
	Off (*default*) YUV RGB	Disables the Video Legalizer. Enables the Video Legalizer to clip YUV to legal levels. Enables the Video Legalizer to clip RGB to legal levels.

Legalizer White Clip

When the Video Legalizer mode is *YUV* or *RGB*, this parameter limits the white level so that is does not exceed the adjusted limit. Limit can be set from +80 IRE to +120 IRE.

(15.1) Legalizer White Clip	Selections	Selection Descriptions
	Variable	Adjusts white clip level from +80 IRE to +120 IRE in 0.5 steps. *Default (unity):* 100 IRE

Legalizer Black Clip

When the Video Legalizer mode is *YUV* or *RGB*, this parameter limits the black level to the adjusted limit. Limit can be set from -10 IRE to +20 IRE.

(15.2) Legalizer Black Clip	Selections	Selection Descriptions
	Variable	Adjusts black level limit from -10 IRE to +20 IRE in 0.5 steps. *Default (unity):* 0 IRE

Legalizer Chroma Clip

When the Video Legalizer mode is *YUV*, this parameter limits the maximum chroma level to the adjusted limit. The limit can be set from +60% IRE to +140%.

(15.3) Legalizer Chroma Clip	Selections	Selection Descriptions
	Variable	Adjusts chroma clip level from +60 IRE to +140% in 0.5 steps. *Default (unity):* 100 IRE

AFD Out SDI1/2

AFD Out SDI1/2 determines whether the Video Processor inserts a SMPTE 2016 Active Format Descriptor (AFD) packet into its output video. The inserted AFD code does not affect the Video Processor's up/down/cross conversion, but it may affect downstream video processing if the signal is Downconverted.

Note: AFD codes are only inserted into HD video outputs.

(16.1) AFD Out SDI2	Selections	Selection Descriptions
	OFF *(default)*	The FS2 does not insert an AFD code into the output. If the video input has a AFD code and the FS2 is not up/down/cross-converting it, the input AFD code will be passed through to the output.
	Auto	If the FS2 is not upconverting or Downconverting the input video, the input AFD code is passed through. If there is no AFD code on the input video, a "Full Frame" (8) code is inserted. If the FS2 is upconverting, the appropriate AFD code will be chosen based on the upconvert mode.
	>16:9	The FS2 always inserts a "Box > 16:9 (center)" AFD code (4), which indicates that the HD image has an aspect ratio greater than 16:9 as a vertically centered letterbox within the 16:9 frame.
	Full Frame	The FS2 always inserts a "Full Frame" AFD code (8), which indicates that the HD image is full frame, with an aspect ratio that is 16:9.
	Pillarbox	The FS2 always inserts a "4:3 (center)" AFD code (9), which indicates that the HD image has a 4:3 aspect ratio as a horizontally center pillarbox image within the 16:9 frame.
	Letterbox	The FS2 always inserts a "16:9 (with complete 16:9 image protected)" AFD code (10), which indicates that the HD image is full frame, with a 16:9 aspect ratio and all image areas are protected.
	14:9	The FS2 always inserts a "14:9 (center)" AFD code (11), which indicates that the HD image has a 14:9 aspect ratio as a horizontally centered pillarbox within the 16:9 frame.
	4:3 Alt 14:9	The FS2 always inserts a "4:3 (with alternate 14:9 center)" AFD code (13), which indicates that the HD image has a 4:3 aspect ratio and with an alternative 14:9 centered pillarbox image within the 16:9 frame.
	16:9 Alt 14:9	The FS2 always inserts a "16:9 (with alternative 14:9 center" AFD code (14), which indicates that the HD image has a 16:9 aspect ratio with an alternative 14:9 center within the 16:9 frame.
	16:9 Alt 4:3	The FS2 always inserts a "16:9 (with alternative 4:3 center)" AFD code (15), which indicates that the HD image has a 16:9 aspect ratio with an alternative 4:3 center within the 16:9 frame.

AFD VANC Output Line

AFD VANC Output Line determines which video output line has AFD VANC inserted (HD output only) on the Video Processor output.

(16.2) AFD VANC Output Lines	Selections	Selection Descriptions
	10 *(default)*	Adds AFD VANC to line 10.
	9–42	Uses the ADJUST knob to select which lines will have AFD VANC added.

Downcvt AFD Dflt

Downconvert AFD Default selects how the Video Processor will operate when *Downconvert Mode* has been set to *Auto AFD* and no AFD codes are detected at the selected input source (that is, this menu selects the default Downconversion to use when AFD is absent). This parameter is in effect only when the input is HD (720p, 1080i, or 1080p) and the selected output format is SD (525i or 625i).

(16.3) Downconvert AFD	Selections	Selection Descriptions
	Hold Last *(default)*	Use the last detected AFD code and continue to use its aspect ratio until a new AFD code is detected again in the SDI metadata.
	Crop	When AFD code is absent, switch the Downconverter mode to Crop.
	Anamorphic	When AFD code is absent, switch the Downconverter mode to Anamorphic.
	14:9	When AFD code is absent, switch the Downconverter mode to 14x9.
	Letterbox	When AFD code is absent, switch the Downconverter mode to Letterbox.

Caption Xlator

The *Caption Translator* setting translates closed captioning from the SD CEA-608 format on line 21 to the HD CEA-708 format and inserts it into the HD output video stream.

Note: This parameter interacts with *SD Line 21 Blanking*; see the explanation for that setting also.

(17) Caption Xlator	Selections	Selection Descriptions
	On	When set to *On* and using the UpConverter, the FS2 will automatically translate incoming line 21 captions to CEA-708 format and insert the VANC packets into the converted HD video stream. This is a complete translation from CEA-608 format to CEA-708 format (including the embedded SD captions). When set to *On* and using the Downconverters, the FS2 will automatically intercept and reformat the SD caption data in the incoming CEA-708 VANC packets, and output it on line 21 of the standard definition outputs.
	Off *(default)*	When *Off*, caption translation is not performed.

In standard definition video (525i59.94), closed captioning data is encoded and sent on line 21 of both fields, using a format defined by the Consumer Electronics Association standard, CEA-608. This is traditionally called “line 21", “SD”, or “608” captioning, and is used for analog composite, analog component, and serial digital (SDI) video.

In high definition video, closed captioning is encoded and sent as Vertical Ancillary (VANC) packets in SDI video, using a format defined by the Consumer Electronics Association standard CEA-708 (there is no equivalent for analog HD video). This is traditionally called “HD,” “DTV,” or “708” captioning. The data formatting and encoding for 708 captions is very different from the data contained in 608 (SD)

captioning, reflecting the added features and capabilities available with the CEA-708 standard.

When the Caption Translator is on, the FS2 UpConverter automatically translates incoming line 21 captions to CEA-708 format and inserts the VANC packets into the converted HD video stream. This is a complete translation from CEA-608 format to CEA-708 format (including the embedded SD captions).

The FS2 DownConverters automatically intercept and reformat the SD caption data in the incoming CEA-708 VANC packets, and output it on line 21 of the standard definition outputs.

Scan Format

Scan Format determines how the Deinterlacer handles interlaced vs. pSf inputs. Normally, this control will only be used to indicate that a 1080PsF25 input is PsF and not interlaced.

If *Auto* is selected, the system will look for clues in the source's SMPTE 352 (Payload ID) data and respond accordingly. If there is no SMPTE 352 information, the system will assume that 23.98/24 fps sources are PsF, and 25/29.97/30 fps sources are interlaced.

If *Progressive* is selected, the system will assume that all sources are PsF (even if there is SMPTE 352 data to the contrary).

If *Interlaced* is selected, the system will assume that all sources are interlaced (even if there is SMPTE 352 data to the contrary).

(18) Scan Format	Selections	Selection Descriptions
	Auto *(default)*	Deinterlacer detects input source payload ID data and sets the processing format accordingly.
	Progressive	Assumes all input sources are progressive.
	Interlaced	Assumes all input sources are interlaced.

19 SD Line 21 Blanking

The *SD Line 21 Blanking* setting determines whether the FS2 blanks line 21 closed captioning data prior to video processing of an SD 525i video input. (Line 21 normally occurs at the top of the raster in the overscan area of video, so the presence of captioning data or blanking does not interfere with the visible SD or Upconverted video.)

In *Pass* mode, the FS2 does not blank line 21 of the SD video input and passes the unaltered video to the Video Processor for transformation. This is the setting to use if there is no captioning data present on line 21 of a 525i video input.

In *Blank* mode, the FS2 copies and remembers the contents of SD line 21 and then blanks those lines before transformation to ensure captioning data does not get included in the transformed video. If the output video is SD 525i, the copied caption information gets reinserted on line 21 of the output. If the output video is Upconverted and parameter *17 Caption Xlator* is *On*, the copied caption gets translated into an HD caption and inserted into the transformed output (and if the

caption translator is *Off*, the HD output does not contain caption data). This is the setting to use if the SD input includes a caption and you want to retain it at the output (parameter *17 Caption Xlator* must be *On*), or you want to blank it at the output (*17 Caption Xlator* must be *Off*).

In *Auto Blank* mode, the FS2 automatically detects presence or absence of line 21 caption data on the SD input. If no line 21 caption is present, the FS2 passes the video unaltered. If line 21 data is detected, the FS2 copies the data, blanks line 21, and reinserts translated captioning on the transformed HD output if parameter *17 Caption Xlator* is *On*. If the Caption Translator is *Off*, the HD output will not contain captioning. This is the setting to use if your SD input video sometimes contains captions and other times does not, or if you are uncertain which setting to use.

Note: This parameter interacts with parameter *SD Line 21 Blanking*; see the explanation for that parameter also.

19 SD Line 21 Blanking	Selections	Selection Descriptions
	Blank *(default)*	In UpConvert or SD Aspect Ratio Convert modes, this setting blanks 525i input video Line 21 caption data *before* conversion. Use this setting if you want to strip caption data from the input or if you want to translate caption data and reinsert it on the HD output (17 Caption Xlator must be On to reinsert caption on the output.)
	Pass	Passes input video unaltered to the converter and to the outputs. Use this setting if no caption data is present on the 525i input.
	Auto blank	The FS2 looks for Line 21 caption data on the video input. If no caption data is found, input video passes to the converter unaltered. If caption data is present, Line 21 is blanked before video conversion occurs, and if *17 Caption Xlator* is *On*, translated caption data gets inserted on the HD output. If *17 Caption Xlator* is *Off*, the HD output will not include captioning data.

Test Pattern Video

Test Pattern selects the video source for the Test Pattern Generator.

(20) Test Pattern Video	Selections	Selection Descriptions
	75% Bars (*default*)	Sets the test pattern to 75% bars.
	Ramp	Sets the test pattern to a ramp.
	Multiburst	Sets the test pattern to multiburst.
	Flat Field	Sets the test pattern to flat field chroma.
	Black	Sets the test pattern to black.
	100% Bars	Sets the test pattern to 100% bars.

Freeze Output

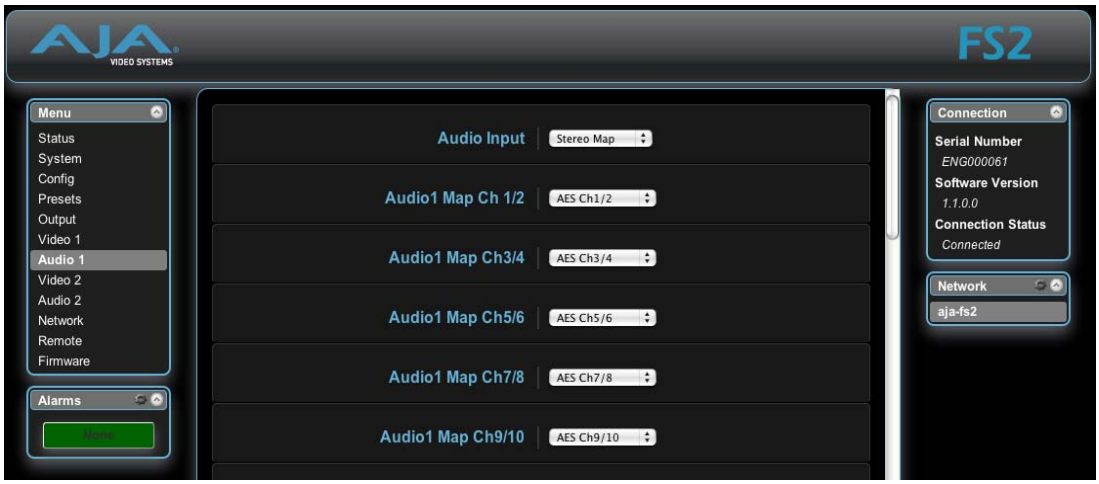
This parameter tells the FS2 to freeze the current video frame on all outputs. This may be useful either for testing or in case of loss of the input source.

(21) Freeze Output	Selections	Selection Descriptions
	Off *(default)*	Normal operation. The FS2 outputs video from the input.
	On	The FS2 captures and freezes the most current video frame and displays it on the outputs as long as this parameter is set to *On*.

Note: The freeze feature can be controlled not only by the front-panel and web browser interface, but also by a GPI input. When a GPI input is causing the freeze condition, the EXT lamp will be lit on the front-panel.

Audio 1 and 2 Screens

The *Audio 1* and *Audio 2* browser screens display the audio control selections for the audio inputs and outputs.



Audio Input

Audio Input performs input audio source selection for the Audio Processor 1. Multiple input sources may be present at all the connectors on the FS2 rear panel, but the active input source routed through the FS2 will be the one selected here.

(1) Audio Input	Selections	Selection Descriptions
	AES/EBU *(default)*	Selects the AES/EBU digital audio input (16-ch) as the input source.
	Analog	Selects the Analog audio connector (DB25, 8-ch) as the input source. Input channels 9-16 are set to Mute.
	Embed SDI1	Uses the embedded audio from the SDI 1 video input as the input source.
	Embed SDI2	Uses the embedded audio from the SDI 2 video input as the input source.
	Embed Fiber1	Uses the embedded audio from the optional Fiber 1 video input as the input source.
	Embed Fiber2	Uses the embedded audio from the optional Fiber 2 video input as the input source.
	HDMI	Uses the embedded audio from the HDMI video input (8-ch) as the input source. Input channels 9-16 are set to Mute.
	Dolby Decode	Selects the Dolby Decoder output as the audio processor input.
	Mute	Sets all input channels to Mute.
	Channel Map	For the 16 channels of audio input, selects inputs according to Audio Map settings. Any of the 16 embedded channels can be mapped to one of the 96 sources.
	Stereo Map	For the 16 channels of audio input, selects stereo inputs according to Audio Map settings. Any channel pair (8 pair total) can be mapped to 48 different choices.

If parameter *3 Audio Follow Video* is set to *On*, the Audio Input selection is independently remembered for each video input. When Audio Follow Video is *Off*, audio for each video input is not remembered and you must manually select the

audio source you want. If you have never manually selected the audio source, the factory default audio selection is used.

Audio Map Ch1–16

When *Channel Map* is selected, these *Map* parameters for *Audio Channels 1–16* map an audio source to each audio output channel. Available source selections for the audio output channels are listed in the following table. The *default* selections are AES Ch1–16 for Audio Output Channels 1–16, respectively.

(1.1–1.16) Audio Map Ch1–16	Selections	Selections	Selections	Selections
	AES Ch 1	SDI 1 Ch 1	Fiber 1 Ch1	HDMI Ch1
	AES Ch 2	SDI 1 Ch 2	Fiber 1 Ch2	HDMI Ch2
	AES Ch 3	SDI 1 Ch 3	Fiber 1 Ch3	HDMI Ch3
	AES Ch 4	SDI 1 Ch 4	Fiber 1 Ch4	HDMI Ch4
	AES Ch 5	SDI 1 Ch 5	Fiber 1 Ch5	HDMI Ch5
	AES Ch 6	SDI 1 Ch 6	Fiber 1 Ch6	HDMI Ch6
	AES Ch 7	SDI 1 Ch 7	Fiber 1 Ch7	HDMI Ch7
	AES Ch 8	SDI 1 Ch 8	Fiber 1 Ch8	HDMI Ch8
	AES Ch9	SDI 1 Ch 9	Fiber 1 Ch9	Dolby Ch1
	AES Ch10	SDI 1 Ch10	Fiber 1 Ch10	Dolby Ch2
	AES Ch11	SDI 1 Ch11	Fiber 1 Ch11	Dolby Ch3
	AES Ch12	SDI 1 Ch12	Fiber 1 Ch12	Dolby Ch4
	AES Ch13	SDI 1 Ch13	Fiber 1 Ch13	Dolby Ch5
	AES Ch14	SDI 1 Ch14	Fiber 1 Ch14	Dolby Ch6
	AES Ch15	SDI 1 Ch15	Fiber 1 Ch15	Dolby Ch7
	AES Ch16	SDI 1 Ch16	Fiber 1 Ch16	Dolby Ch8
	Analog Ch 1	SDI 2 Ch 1	Fiber 2 Ch1	Dolby Aux1
	Analog Ch 2	SDI 2 Ch 2	Fiber 2 Ch2	Dolby Aux2
	Analog Ch 3	SDI 2 Ch 3	Fiber 2 Ch3	Mute
	Analog Ch 4	SDI 2 Ch 4	Fiber 2 Ch4	
	Analog Ch 5	SDI 2 Ch 5	Fiber 2 Ch5	
	Analog Ch 6	SDI 2 Ch 6	Fiber 2 Ch6	
	Analog Ch 7	SDI 2 Ch 7	Fiber 2 Ch7	
	Analog Ch 8	SDI 2 Ch 8	Fiber 2 Ch8	
		SDI 2 Ch 9	Fiber 2 Ch9	
		SDI 2 Ch 10	Fiber 2 Ch10	
		SDI 2 Ch 11	Fiber 2 Ch11	
		SDI 2 Ch 12	Fiber 2 Ch12	
		SDI 2 Ch 13	Fiber 2 Ch13	
		SDI 2 Ch 14	Fiber 2 Ch14	
		SDI 2 Ch 15	Fiber 2 Ch15	
		SDI 2 Ch 16	Fiber 2 Ch16	

Audio Map Ch 1/2 through Ch15/16

When *Stereo Map* is selected, these *Map* parameters for *Audio Channels 1/2–15/16* map a pair of audio sources to each audio output channel pair. Available source pair selections for the audio output channel pairs are listed in the following table. The *default* selections are AES Ch1/2–AES 15/16 for Audio Output Channels 1/2–15/16, respectively.

(1.17–1.24) Audio (Stereo) Map Ch1/2–15/16	Selections	Selections	Selections	Selections
	AES Ch1/2	SDI 1 Ch1/2	Fiber 1 Ch1/2	HDMI Ch1/2
	AES Ch3/4	SDI 1 Ch3/4	Fiber 1 Ch3/4	HDMI Ch3/4
	AES Ch5/6	SDI 1 Ch5/6	Fiber 1 Ch5/6	HDMI Ch5/6
	AES Ch7/8	SDI 1 Ch7/8	Fiber 1 Ch7/8	HDMI Ch7/8
	AES Ch9/10	SDI 1 Ch9/10	Fiber 1 Ch9/10	Dolby Ch1/Ch2
	AES Ch11/12	SDI 1 Ch11/12	Fiber 1 Ch11/12	Dolby Ch3/Ch4
	AES Ch13/14	SDI 1 Ch13/14	Fiber 1 Ch13/14	Dolby Ch5/Ch6
	AES Ch15/16	SDI 1 Ch15/16	Fiber 1 Ch15/16	Dolby Ch7/Ch8
		SDI 2 Ch1/2	Fiber 2 Ch1/2	Dolby Aux
	Analog Ch1/2	SDI 2 Ch3/4	Fiber 2 Ch3/4	Mute
	Analog Ch3/4	SDI 2 Ch5/6	Fiber 2 Ch5/6	
	Analog Ch5/6	SDI 2 Ch7/8	Fiber 2 Ch7/8	
	Analog Ch7/8	SDI 2 Ch9/10	Fiber 2 Ch9/10	
	Analog Ch1/2	SDI 2 Ch11/12	Fiber 2 Ch11/12	
	Analog Ch3/4	SDI 2 Ch13/14	Fiber 2 Ch13/14	
	Analog Ch5/6	SDI 2 Ch15/16	Fiber 2 Ch15/16	
	Analog Ch7/8			

Embedded Audio Out

This setting turns embedded audio in the Processor output video to *On*, *Mute*, or *Off*. When set to *On* audio is embedded in the SDI video. When set to *Off*, no audio data is embedded. When set to *Mute*, audio data is embedded but muted.

(2) Embed Audio Out	Selections	Selection Descriptions
	On (default)	Turn audio embedding On at the Processor output.
	Mute	Embeds but mutes audio on the Processor output.
	Off	Turns audio embedding Off at the Processor output

Audio Follow Video

Audio Follow Video determines whether audio settings are remembered for each video input. When AFV is *On*, The FS2 remembers the saved audio settings associated with the currently selected video input. Whenever a new video input is selected, the corresponding audio settings are recalled. This allows you to set up specific audio settings for the different video inputs.

When AFV is *Off*, you must manually select the audio you want for a selected video input, and that audio source remains selected until you change it. If the audio source has never been selected, the factory default audio source is used.

***Audio Follow Video* applies to these parameters:**

- Audio Input
- Audio Map
- Audio Map (Stereo)
- Audio Delay
- Audio Output Levels
- Audio Level Ch (n)
- Audio Output Phase
- Audio Phase Ch (n)

Note: Turning *Audio Follow Video* (AFV) *On* results in the loss of the above settings. When AFV is turned *On*, the source-memory settings are written over the current settings. Turning AFV *Off* again will not restore the original settings, but instead will result in the source memory settings remaining in effect until edited again.

(3) Audio Follow Video	Selections	Selection Descriptions
	Off *(default)*	Normal operation. Audio settings must be made separately from any video settings; they are not associated automatically.
	On	The FS2 remembers the saved audio settings associated with the currently selected input. Whenever an input is selected, the corresponding audio settings will be recalled. This allows you to set up specific audio settings for the different video inputs (i.e., perhaps the SDI 1 has a specific embedded audio channel mapping while the component video input might always use AES audio input).

Audio SG

Audio SG determines the audio signal output from the FS2's internal test signal generator.

(4) Audio SG	Selections	Selection Descriptions
	OFF *(default)*	Turn audio test signal output OFF.
	400 Hz	Output a standard 400 Hz test signal tone.
	1 kHz	Output a standard 1 kHz test signal tone.

Audio Delay

This *Audio Delay* setting applies to all audio input selections except *Channel Map* and *Stereo Map* (described separately below). This setting allows you to adjust the audio delay to compensate for video timing (delay/latency). You can set the delay from -16 to +256 mS (the default is zero delay).

(6.0) Audio Delay	Selections	Selection Descriptions
	Variable	Adjustment range increments from -16 to +256 mS. *Default*=0 (synchronized to video output).

If *Audio Follow Video* is set to *On*, then the *Audio Delay* selection is independently kept for each video input. If *Audio Follow Video* is set to *Off*, then the last setting you made for *Audio Delay* is used.

Audio Delay Ch1-16 (Channel Map))

These settings apply only when the audio input is set to *Channel Map*. The settings allow you to adjust the audio delay for each audio channel to compensate for video timing (delay/latency). Turning the *ADJUST* knob changes the delay from -16 to +256 mS (the default is zero delay).

(6.1-16) Audio Delay Channel Map	Selections	Selection Descriptions
	Variable	Adjustment range increments from -16 to +256 mS. *Default*=0 (synchronized to video output).

If parameter *Audio Follow Video* is set to *On*, then the *Audio Delay* selection is independently kept for each video input. If *Audio Follow Video* is set to *Off*, then the last setting you made for *Audio Delay* is used.

Audio Delay Ch1/2-15/16 (Stereo Map)

These settings apply only when the audio input (parameter 1) is set to *Stereo Map* and allows you to adjust the stereo audio delay to compensate for video timing (delay/latency). Turning the *ADJUST* knob changes the delay from -768 to +12288 samples (the default is zero delay).

(6.17-24) Audio Delay Stereo Map	Selections	Selection Descriptions
	Variable	Adjustment range increments from -16 to +256 samples. *Default*=0 (synchronized to video output).

If parameter *Audio Follow Video* is set to *On*, then the *Audio Delay* selection is independently kept for each video input. If *Audio Follow Video* is set to *Off*, then the last setting you made for *Audio Delay* is used.

Audio Output Levels

Audio Output Levels enables or disables individual audio output level adjustment of the 16 audio output channels.

d

(7.0) Audio Output Levels	Selections	Selection Descriptions
	Unity (*default*)	Disable audio output level adjustments and set levels to unity.
	Adjust	Enable audio output level adjustments for the 16 audio channels.

Note: If *Audio Follow Video* is set to *On*, then *Audio Output Levels* selection is independently kept for each video input. If *Audio Follow Video* is set to *Off* then the last setting you made for *Audio Output Levels* is used.

Audio Level Ch1–16

These 16 settings adjust the audio levels of the 16 audio channels ± 18dB dB.

(7.1–7.16) Audio Level Ch1–16	Selections	Selection Descriptions
	Variable	Adjustment of audio level ±18dB range in steps of .5dB. *Default:* +0dB

Audio Output Phase

Audio Output Phase enables or disables individual audio phase adjustment of the 16 audio output channels.

(8.0) Audio Output Phase	Selections	Selection Descriptions
	Unity(*default*)	Disable audio phase adjustments and set phase to unity.
	Adjust	Enable audio phase adjustments for the 16 audio channels.

Note: If parameter 3 *Audio Follow Video* is set to *On*, then Audio Output Phase selection is independently kept for each video input. If *Audio Follow Video* is set to *Off*, then another *Audio Output Phase* selection is used.

Audio Phase Ch1–16

These settings select whether audio phase is normal (same as passed from the input) or inverted on Channels 1–16.

(8.1-16) Audio Phase Ch1–Ch16	Selections	Selection Descriptions
	Normal (*default*) Invert	Phase is unaltered as it passes from the input to the output. Phase is inverted as it passes from the input to output. (This may be useful to correct analog audio signals that are incorrectly wired, placing audio out of phase at input.)

Note: If parameter *Audio Follow Video* is set to *On*, then Audio Output Phase selection is independently kept for each video input. If *Audio Follow Video* is set to *Off*, then the last setting you made for *Audio Output Phase* is used.

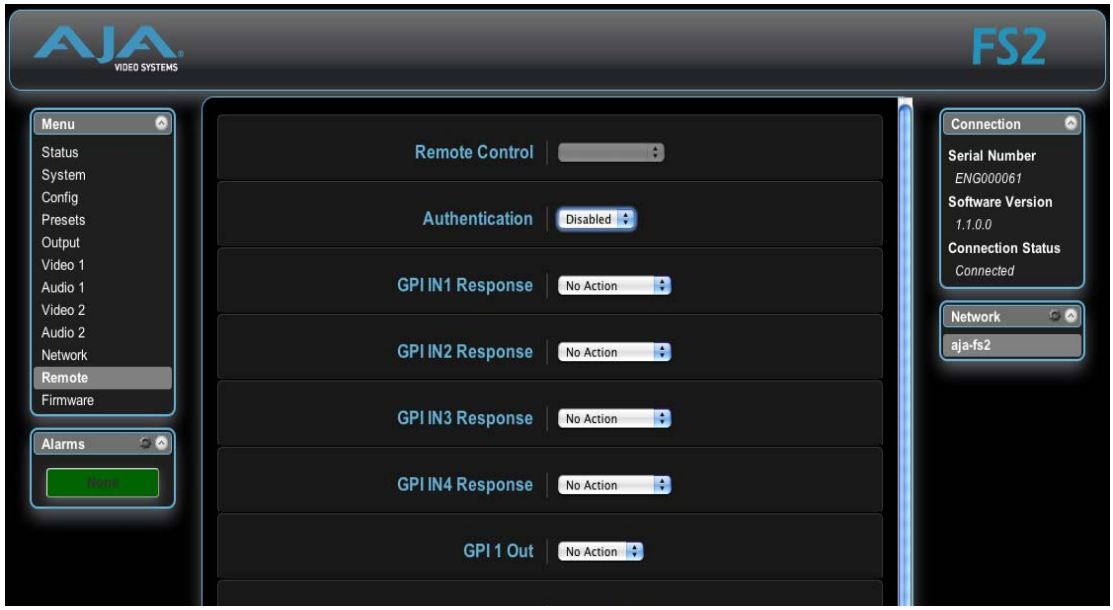
Audio Dolby E Timing

This parameter enables or disables Dolby E audio delay timing.

(9) Audio Dolby E Timing	Selections	Selection Descriptions
	On Off Offset	Enables audio timing of the Dolby E signal. Turns off Dolby E audio timing. Turns on Dolby E timing offset.

Remote Screen

The *REMOTE* screen lets you set up how you want the FS2 to be controlled. Control options include the front panel, a remote computer running a browser, a remote control panel, and GPI inputs and outputs.



Remote Control

The *Remote Control* setting determines how the FS2 panel responds to controls locally from the front panel and from a network attached computer with a web browser (or both). The selected mode is indicated by the color of the *REMOTE* LED. (**Note:** the *REMOTE* LED and other front panel indicators are described in *Chapter 2*.)

(1) Remote Control	Selections	Selection Descriptions
	LOCAL + REMOTE *(default)*	Control the FS2 from the front panel, a remote control panel, or a network-attached browser. The *REMOTE* LED lights amber.
	LOCAL ONLY	Control the FS2 only from the front panel (browsers cannot change parameters). The *REMOTE* LED lights green.
	REMOTE ONLY	Control the FS2 only from a network attached browser or remote control panel. The *REMOTE* LED lights red.

Authentication

The *Authentication* setting enables or disables an authentication login requirement. When login is required, the user must enter a System Password via the web browser before FS2 access is permitted. The default password is “password”.

You can change the password by selecting *Authentication* on the *Remote* browser screen and selecting *Login*. This action reveals *Set Password* and *Confirm Password* text entry fields; you then enable authentication by entering the new password in both fields and clicking the *Enable Authentication* button below the password fields. After you click *Enable Authentication*, a dialog pops up to confirm password acceptance or failure. In the event of failure, enter another password in both fields and click *Enable Authentication*.

Note: If authentication is used, it provides only a minimum security safeguard against unauthorized use of the FS2. The authentication mechanism is simple and does not provide robust security.

GPI IN 1–4 Response

The *GPI IN Response 1–4* settings determine what happens when a GPI trigger is received at the FS2's *GPI* Inputs (1–4). A GPI Trigger is defined as a TTL low voltage level (0 to 0.8V with respect to its isolated ground pin). The GPI interface pinout and specifications are discussed in "Appendix B: GPI & RS422 Pinouts" on page 169. Input video sources selected by GPI trigger remain selected until the trigger is released. GPI Inputs light the front panel EXT LED when triggered.

(2.1–4) GPI IN 1–4 Response	Selections	Selection Descriptions
	No Action *(default)*	Performs no action.
	PRESET 1–10	Recalls the specified PRESET configuration.
	Vid1 Freeze	Freezes the current video frame at its outputs. Freezing stops when the GPI trigger is released.
	Vid1 SDI1 In	Selects SDI1 as the Vid1 video input.
	Vid1 SDI2 In	Selects SDI2 as the Vid1 video input.
	Vid1 SDI DLink	Selects Dual-Link mode for the SDI input.
	Vid1 Fiber1 In	Selects Fiber1 as the Vid1 video input.
	Vid1 Fiber2 In	Selects Fiber2 as the Vid1 video input.
	Vid1 Fbr DLink	Selects Dual-Link mode for the Fiber input.
	Vid1 HDMI In	Selects HDMI In as the Vid1 video input
	Vid1 Cmpst In	Selects Composite In as the Vid1 video input.
	Vid1 Cmpnt In	Selects Component In as the Vid1 video input.
	Vid 1 ARC Off	Turns Off SD to SD aspect ratio conversion.
	Vid1 ARC LTBX	Converts 16:9 anamorphic video to letterbox.
	Vid1 ARC H CP	Converts 16:9 anamorphic video to 4:3 standard (H crop—crops left and right edges of video).
	Vid1 ARC PLBX	Converts 4:3 standard video to 16:9 anamorphic (pillarbox).
	Vid1 ARC V CP	Converts letterbox video to 16:9 anamorphic (V crop).
	Vid1 ARC 14x9	Converts 16:9 anamorphic video to 14:9 cropped.
	Vid1 DC Crop	Downconverts HD source to cropped 4x3 picture.
	Vid1 DC ANA	Downconverts HD source to anamorphic picture.
	Vid1 DC 14x9	Downconverts HD source to 14x9 picture.
	Vid1 DC Auto AFD	Downconverts HD source automatically using the best mode for the input video Active Format Description (AFD) code.
	Vid1 DC LTBX	Downconverts HD source to letterbox picture.
	Vid1 UC 4x3 PB	Upconverts SD source to 4x3 pillarbox.
	Vid1 UC 14x9 PB	Upconverts SD source to 14x9 pillarbox.
	Vid1 UC FLSCR	Upconverts SD source to full screen.
	Vid1 UC LB FUL	Upconverts SD source from letterbox to full.
	Vid1 UC WDZM	Upconverts SD source to a wide zoom.
	Vid2...	Repeat the above for Vid2 except that UC Wide Zoom is replaced by Vid2 UC CSTM, which Upconverts an SD source to a user-specified format.

GPI 1–4 OUT

The *GPI 1–4* settings determine whether certain FS2 events will generate a GPI trigger output at *GPI* outputs 1, 2, 3, or 4. The GPI interface pinout is presented in "Appendix B: GPI & RS422 Pinouts" on page 169.

(3.1–4) GPI 1–4 OUT	Selections	Selection Descriptions
	No Action *(default)*	Does not trigger a GPI output regardless of event.
	Alarm	Generates a GPI output trigger if an internal alarm condition occurs.
	No Video 1	Generates a GPI output trigger if no video is detected at the selected input.
	No Video 2	Generates a GPI output trigger if no video is detected at the selected input.
	No Ref	Generates a GPI 1 output trigger if no video is detected at the *Ref* video input.

Interaction of Presets and GPIs

Triggering presets using GPI inputs offers considerable power but also requires some care to avoid unexpected results. If you plan to trigger presets using GPIs, please see the information about the "Interaction of Presets and GPIs" on page 121.

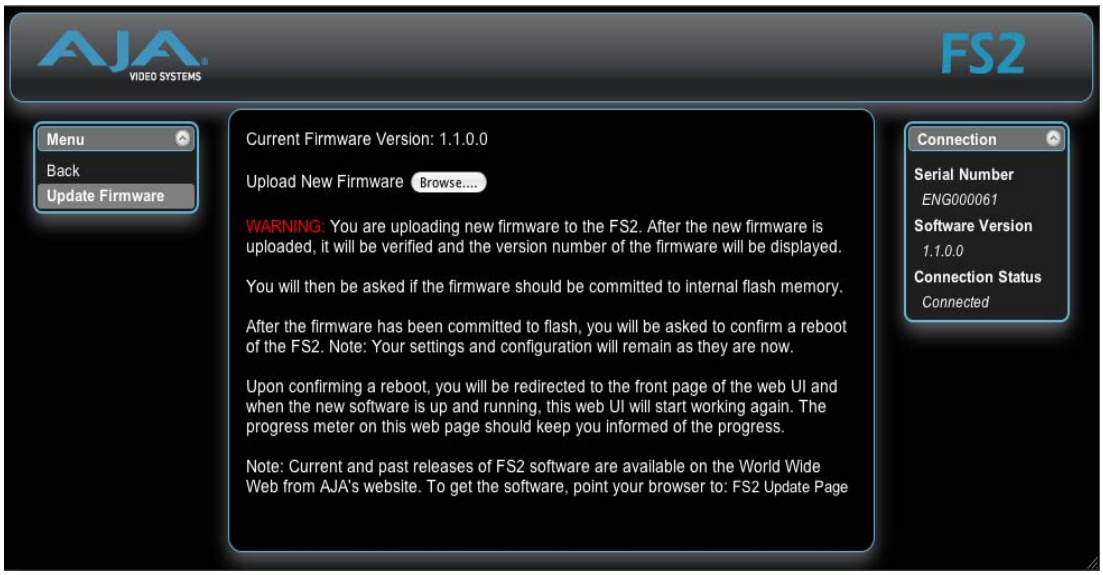
Firmware Screen

The *Update Firmware* screen allows you to download and install a firmware update from AJA.

First visit the AJA website (aja.com) to locate and download the updated software. The following page provides FS2 support information and will include links to locations where you can download updates:
http://www.aja.com/support/converters/converters-fs2.php.

After downloading the software update to your local drive, use the *Browse* button shown below to locate the local software copy. Follow the prompts to load the new firmware into the FS2.

Detailed update installation steps are presented in *Chapter 3 Installation*.


AJA
VIDEO SYSTEMS
FS2
Menu
Back
Update Firmware
Current Firmware Version: 1.1.0.0
Upload New Firmware
Browse....
WARNING: You are uploading new firmware to the FS2. After the new firmware is uploaded, it will be verified and the version number of the firmware will be displayed.
You will then be asked if the firmware should be committed to internal flash memory.
After the firmware has been committed to flash, you will be asked to confirm a reboot of the FS2. Note: Your settings and configuration will remain as they are now.
Upon confirming a reboot, you will be redirected to the front page of the web UI and when the new software is up and running, this web UI will start working again. The progress meter on this web page should keep you informed of the progress.
Note: Current and past releases of FS2 software are available on the World Wide Web from AJA's website. To get the software, point your browser to: FS2 Update Page
Connection
Serial Number
ENG000061
Software Version
1.1.0.0
Connection Status
Connected

FS2 Web Interface, Firmware Update Screen

FS2

Chapter 6: SNMP

FS2 Simple Network Management Protocol

SNMP is defined as a "simple network management protocol" and was specified as a component of the internet protocol suite by the Internet Engineering Task Force (IETF). The FS2 can act as a *network element* that issues SNMP trap messages signalling a detected alarm condition or other system condition.

Before the FS2 can respond to SNMP requests, *CONFIG* parameter *4.0* must be set to enable SNMP communication.

4.0 SNMP Enable	Selections	Selection Descriptions
	Disable *(Default)* Enable 1 Enable Both	When set to *Disable*, the FS2 will not issue SNMP trap messages. When set to *Enable 1*, the FS2 issues SNMP trap messages to Trap Destination 1 (parameter *4.1*) and as defined in the MIB. When set to *Enable Both*, the FS2 issues SNMP trap messages to Trap Destination 1 and 2 (parameters *4.1* and *4.3*) and as defined in the MIB.

When SNMP is enabled, one or more of 4 alarms may be sent by the FS2 to the client network management system (NMS) as a trap message:

```
Power supply failure or disconnection: FS2PSAlarm (see parameter 5)
Reference video: FS2REFAlarm (see parameter 7)
Format: FS2FMTAlarm (see parameter 6.1)
Temperature of FS2 is over limit (internally): FS2OVRAlarm
```

The trap message would be sent to server-based external NMS. These trap destinations must have a fixed IP address that you have pre-defined (FS2 parameters *4.1* and *4.3* must be set to point to these, if used). For example, the FS2 could send a trap message if one of its redundant power supplies becomes unplugged. A client software agent that communicates with the NMS might then get a message telling the operator what has happened.

4.1 SNMP Trap Dest 1	Selections	Selection Descriptions
	Variable	Set the desired IP address where traps will be sent (usually a client on your LAN). Press and turn the *ADJUST* knob to change the blinking values. Use the *SELECT* knob to advance through the values. Press *ADJUST* to save, or press *SELECT* to revert to previous, or hold down *ADJUST* to restore the factory default setting. *Default:* 192.168.0.3

4.3 SNMP Trap Dest 2	Selections	Selection Descriptions
	Variable	Set the desired IP address where traps will be sent (usually a client on your LAN). Press and turn the *ADJUST* knob to change the blinking values. Use the *SELECT* knob to advance through the values. Press *ADJUST* to save, or press *SELECT* to revert to previous, or hold down *ADJUST* to restore the factory default setting. *Default:* 192.168.0.3

Parameters *4.2* and *4.4* determine the SNMP Port(s) used for sending the trap messages. UDP Port 162 is the default used for SNMP trap messages. However, if this port is being used by another protocol or service, you can change the setting by modifying these parameters.

4.2 SNMP Trap Port 1	Selections	Selection Descriptions
	Variable	Use the *ADJUST* knob to select a UDP port for sending FS2 trap messages. Press *SELECT* to revert to previous, or hold down *ADJUST* to restore the factory default setting. *Default:* 162

4.4 SNMP Trap Port 2	Selections	Selection Descriptions
	Variable	Use the *ADJUST* knob to select a UDP port for sending FS2 trap messages. Press *SELECT* to revert to previous, or hold down *ADJUST* to restore the factory default setting. *Default:* 162

FS2

Appendix A: Specifications

Video Formats

The FS2 can convert almost any input format to nearly any output format, as long as the frame rates are of the same family. These are the three families:

- 59.94/29.97/23.98
- 50/25
- 60/30/24

Available input and output formats are listed later in this appendix.

Exceptions to the format conversion capability are listed below; attempting these conversions causes a Video Format alarm:

- 525i59.94 to 1080p (and pSF) 23.98
- 1080i59.94 to 1080p (and pSF) F23.98
- 720p59.94 to 1080p (and pSF) 23.98
- 1080p29.97 -> 1080p (and pSF) 23.98
- 1080pSF29.97 -> 1080p (and pSF) 23.98
- 625i60 -> 1080p (and pSF) 23.98
- 1080i60 -> 1080p (and pSF) 23.98
- 720p60 -> 1080p (and pSF) 23.98
- 1080p30 -> 1080p (and pSF) 23.98

Video Format Alarms

Whenever incompatible I/O formats are detected, an alarm is triggered and these results are produced:

1. Lights the relevant alarm LED on the front panel (FMT ERROR, 1 or 2).
2. Displays an alarm in the browser user interface.
3. Influences selection of the first-displayed status screen.
4. Generates an SNMP trap (if configured).
5. Triggers a GPI Output (if configured).

A

Video Input/Output Formats

The following topics list the FS2 video input/output formats.

Note: These frame rates are not available with current software at inputs or outputs: 720p23.98/24/25/29.97/30. Also, the Component I/O does not yet support 1080p. These formats will be supported in a future release.

SDI and Fiber

There are two standard SDI video inputs and outputs, and two optional Fiber video inputs and outputs. All SDI video inputs and outputs, including Fiber, are YCbCr 4:2:2 pixel format. The FS2 does not accept or produce 4:4:4 YCbCr, RGB, or XYZ inputs or outputs, or YCbCr 4:2:2 12-bit inputs or outputs.

These are the FS2 SDI and Fiber Optic video input/output formats:

SD-SDI, 270Mb (SMPTE 259):
- 525i/59.94
- 625i/50

HD-SDI, 1.4835Gb (SMPTE 292):
- 720p/59.94
- 1080i/59.94
- 1080PsF/23.98, 1080PsF/29.97
- 1080p/23.98, 1080p/29.97
- 2Kx1080p/23.98, 2Kx1080p/29.97

HD-SDI, 1.485 Gb (SMPTE 292):
- 720p/50, 720p/60
- 1080i/60
- 1080PsF/24, 1080PsF/25, 1080PsF/30
- 1080p/24, 1080p/25, 1080p/30
- 2Kx1080p/24, 2Kx1080p/25, 2Kx1080p/30

Dual-link HD-SDI, 2x 1.4835Gb (SMPTE 372):
- 1080p/59.94
- 2Kx1080p/59.94

Dual-link HD-SDI, 2x 1.485Gb (SMPTE 372):
- 1080p/50, 1080p/60
- 2Kx1080p/50, 2Kx1080p/60

3G HD-SDI, 2.967Gb (SMPTE 425):
- 1080p/59.94 (Level A or B)
- 2Kx1080p/59.94 (Level A or B)
- Dual Stream (2 streams 1.4835Gb HD-SDI)

3G HD-SDI, 2.97Gb (SMPTE 425):
- 1080p/50, 1080p/60 (Level A or B)
- 2Kx1080p/50, 2Kx1080p/60 (Level A or B)
- Dual Stream (2 streams 1.485Gb HD-SDI)

HDMI

The HDMI input automatically accepts RGB 4:2:2 or YCbCr 4:2:2. HDMI outputs are configurable between RGB and YUV. HDCP copy protected video is not supported.

These are the FS2 HDMI input/output formats:

- 525i/59.94
- 625i/50
- 720p/50, 720p/59.94, 720p/60
- 1080i/59.94, 1080i/50
- 1080p/23.98, 1080p/29.97, 1080p/59.94, 1080p/24, 1080p/25, 1080p/30, 1080p/50, 1080p/60

Component Analog

The Component Analog Input accepts YUV, configurable to SMPTE or Betacam levels. The Component Analog Output is configurable to YUV (Betacam or SMPTE), or RGB.

These are the FS2 component analog video input/output formats:

- 525i/59.94
- 625i/50
- 720p/50, 720p/59.94, 720p/60
- 1080i/59.94
- 1080PsF/23.98, 1080PsF/29.97
- 1080p/23.98, 1080p/29.97
- 1080PsF/24, 1080PsF/25, 1080PsF/30 (SMPTE 274)
- Output only: 1080p/24, 1080p/25, 1080p/30 (SMPTE 274)

Composite Analog

These are the FS2 composite analog video input/output formats:

- 525i/59.94 (switchable 7.5 IRE or 0 IRE setup)
- 625i/50

Reference

These are the reference video formats:

- 525i/59.94 analog composite
- 625i/50 analog composite
- Tri-level sync

Video A/D, D/A

These specifications describe the digital video D/A and A/D converters:

- 12 bits
- 2x oversampled (HD)
- 4x oversampled (SD)

Audio Inputs and Outputs

These specifications describe the analog and digital audio inputs and outputs:

- 8-channel balanced analog I/O, DB-25F 25-pin connector (Tascam pinout)
- 16-channel AES/EBU I/O (BNC), DB-25F 25-pin connector
- 16-channel SDI/HD-SDI embedded

Audio Levels

These audio levels can be set via the front panel and browser menus:

- +12dBu, +15dBu, +18dBu, +24dBu, (Full Scale Digital)

LAN

These specifications describe the Ethernet LAN connection:

- 10/100/1000 automatic configuration
- Automatic cable crossover (auto MDI-X)
- Embedded web server
- SNMP
- VTECS™ protocol for Remote Control Panel

RS-422

The RS-422 connector follows these specifications:

- DB-15F: Reserved for future use.

GPI

The following specifications describe the GPI input and output connector:

- DB-15F: single connector provides four inputs and four outputs. See Appendix B for a connector pinout and GPI specifications.

Physical

These are the physical specifications of the FS2 equipment frame:

- Width: 17.5 inches (44.45cm); 19 inches (48.26 cm) including rack ears
- Depth: 16 inches (40.65 cm), including knobs and connectors that extend beyond the frame
- Height: 1RU, 1.75 inches (4.44cm)
- Weight: 7.85 pounds, 3.56 kilograms
- Operating temperature range: 0–40 degrees C
- Cooled via two internal fans and side vents.

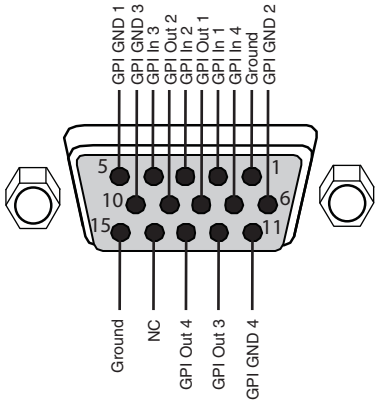
Power

These are the FS2 AC input power specifications:

- Voltage: 100-240 VAC
- Power Consumption: 55W (80W maximum)
- Two independent power supplies, fully redundant, diode isolated.

Appendix B: GPI & RS422 Pinouts

GPI Connections



Pin	Function	Pin	Function
1	Ground	9	GPI Out 2
2	GPI In 1	10	GPI GND 3
3	GPI In 2	11	GPI GND 4
4	GPI In 3	12	GPI Out 3
5	GPI GND 1	13	GPI Out 4
6	GPI GND 2	14	NC
7	GPI In 4	15	Ground
8	GPI Out 1		

GPI DE-15F Connector Pinout

The GPI inputs and outputs are electrically isolated from power and ground on the FS2 frame. There are four inputs and four outputs. Electrical isolation is provided for up to four pieces of external equipment.

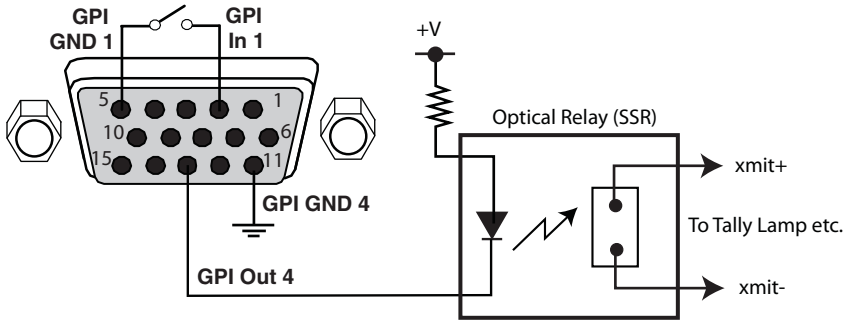
The following guidelines apply to the four GPI inputs and outputs:

- GPI In 1 and GPI Out 1 share a common isolated ground on pin 5 (GPI GND 1),
- GPI In 2 and GPI Out 2 share a common isolated ground on pin 6 (GPI GND 2).
- GPI In 3 and GPI Out 3 share a common isolated ground on pin 10 (GPI GND 3).
- GPI In 4 and GPI Out 4 share a common isolated ground on pin 11 (GPI GND 4).
- Pins 1 and 15, local chassis ground, may only be used as references when isolation is not required.

- All four GPI inputs are internally pulled high through a 10K ohm resistor to an isolated +5V supply, so that a relay contact closure or any device sinking at least 0.4 mA to ground will register a logic low.
- All four GPI outputs are +5V TTL compatible, sourcing up to 6mA and sinking up to 4mA each.
- GPI Inputs light the front panel EXT LED when triggered.

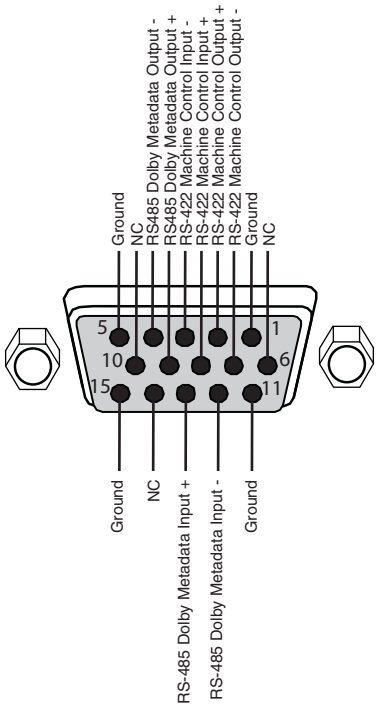
The following illustration shows typical external wiring to the GPI connector. The GPI inputs require some kind of contact closure between the input pin and the input ground pin to register the logic low that triggers the GPI input.

You can connect the outputs to TTL buffers that communicate the GPI output logic levels to other devices. For example, you could use an opto-isolator controlling a relay to activate other equipment as shown below.



Typical GPI Input and Output Connections

RS422/RS485 Connections



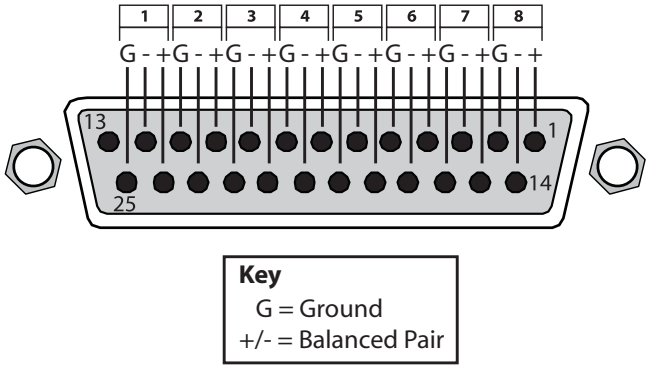
Pin	Function	Pin	Function
1	NC	9	RS485 Dolby Metadata Output +
2	RS-422 Machine Control Output +	10	NC
3	RS-422 Machine Control Input -	11	Ground
4	RS485 Dolby Metadata Output -	12	RS-485 Dolby Metadata Input -
5	Ground	13	RS-485 Dolby Metadata Input +
6	NC	14	NC
7	RS-422 Machine Control Output -	15	Ground
8	RS-422 Machine Control Input +		

RS422 Machine Control and RS485 Dolby Metadata Connector Pinout

The RS422 and RS485 inputs and outputs are electrically isolated from power and ground on the FS2 frame. The RS422 I/O includes two pairs of connections for machine control functions to be defined in future firmware releases. The RS485 interface provides an additional two pairs of connections for Dolby metadata I/O to be defined in future firmware releases.

Appendix C: Analog Audio Connector Pinout

Analog Audio Connections



Connector Pinout

The two DB25 connectors on the FS2 rear panel support a TASCAM-style cable snake for balanced 8-channel analog audio. The pinout is the same for both input and output connectors, each following the TASCAM DB-25 standard shown in the drawing above.

Appendix D: Safety & Compliance

Federal Communications Commission (FCC) Compliance Notices

Class A Interference Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15, Subpart B of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commericial installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Canadian ICES Statement

Canadian Department of Communications Radio Interference Regulations

This digital apparatus does not exceed the Class A limits for radio-noise emissions from a digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications. This Class A digital apparatus complies with Canadian ICES-003.

Règlement sur le brouillage radioélectrique du ministère des Communications

Cet appareil numérique respecte les limites de bruits radioélectriques visant les appareils numériques de classe A prescrites dans le Règlement sur le brouillage radioélectrique du ministère des Communications du Canada. Cet appareil numérique de la Classe A est conforme à la norme NMB-003 du Canada.

European Union and European Free Trade Association (EFTA) Regulatory Compliance

This equipment may be operated in the countries that comprise the member countries of the European Union and the European Free Trade Association. These countries, listed in the following paragraph, are referred to as The European Community throughout this document:

AUSTRIA, BELGIUM, BULGARIA, CYPRUS, CZECH REPUBLIC, DENMARK, ESTONIA, FINLAND, FRANCE, GERMANY, GREECE, HUNGARY, IRELAND, ITALY, LATVIA, LITHUANIA, LUXEMBOURG, MALTA, NETHERLANDS, POLAND, PORTUGAL, ROMANIA, SLOVAKIA, SLOVENIA, SPAIN, SWEDEN, UNITED KINGDOM, ICELAND, LICHTENSTEIN, NORWAY, SWITZERLAND

Declaration of Conformity

Marking by this symbol indicates compliance with the Essential Requirements of the EMC Directive of the European Union 2004/108/EC.

CE

This equipment meets the following conformance standards:

Safety:

CB- IEC 60065:2001 + A1:2005

NRTL - UL 60065:2003 R11.06, CSA C22.2 NO. 60065:2003 + A1:06

GS - EN 60065:2002 + A1

Additional licenses issued for specific countries available on request.

Emissions:

EN 55103-1: 1996

EN61000-3-2:2006, EN61000-3-3:1995 +A1:2001 +A2:2005

Immunity:

EN 55103-2: 1996

EN61000-4-2:1995 + A1:1999 + A2:2001, EN61000-4-3:2006, EN61000-4-4:2004,

EN 61000-4-5: 2005, EN 610004-6:2007, EN61000-4-11:2004

The product is also licensed for additional country specific standards as required for the International Marketplace.

Warning!

This is a Class A product. In a domestic environment, this product may cause radio interference, in which case, the user may be required to take appropriate measures.

Achtung! Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten, in welchen Fällen der Benutzer für entsprechende Gegenmaßnahmen verantwortlich ist.

Attention! Ceci est un produit de Classe A. Dans un environnement domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilisateur de prendre les mesures spécifiques appropriées.

Korea KCC Compliance Statement

1) Class A ITE

A급 기기 (업무용 방송통신기기)	이 기기는 업무용 (A 급) 으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.

1) Class A device

Class A (Broadcasting and Communication Equipment for Business Use)	Please note that this equipment has obtained EMC registration for business use (Class A), and it is intended to use in other than home area.

Taiwan Compliance Statement

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

This is a Class A product based on the standard of the Bureau of Standards, Metrology and Inspection (BSMI) CNS 13438, Class A.

Japanese Compliance Statement

1. Class A ITE

この装置は、クラスA 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。ＶＣＣＩ－A

This is a Class A product based on the standard of the VCCI Council (VCCI V-3/2008.04). If this equipment is used in a domestic environment, radio interference may occur, in which case, the user may be required to take corrective actions.

Translated Caution Statements, Warning Conventions and Warning Messages

The following caution statements, warning conventions, and warning messages apply to this product and manual.

Warning Symbol

Hazard Warning

Caution Symbol

Before Operating Your FS2 Unit, Please Read the Instructions in This Document

Warning!

Read and follow all warning notices and instructions marked on the product or included in the documentation.

Avertissement ! Lisez et conformez-vous à tous les avis et instructions d'avertissement indiqués sur le produit ou dans la documentation.

Warnung! Lesen und befolgen Sie die Warnhinweise und Anweisungen, die auf dem Produkt angebracht oder in der Dokumentation enthalten sind.

¡Advertencia! Lea y siga todas las instrucciones y advertencias marcadas en el producto o incluidas en la documentación.

Aviso! Leia e siga todos os avisos e instruções assinalados no produto ou incluídos na documentação.

Avviso! Leggere e seguire tutti gli avvisi e le istruzioni presenti sul prodotto o inclusi nella documentazione.

Warning!

Do not use this device near water and clean only with a dry cloth.

Avertissement! N'utilisez pas cet appareil près de l'eau et nettoyez-le seulement avec un tissu sec..

Warnung! Das Gerät nicht in der Nähe von Wasser verwenden und nur mit einem trockenen Tuch säubern.

¡Advertencia! No utilice este dispositivo cerca del agua y límpielo solamente con un paño seco.

Aviso! Não utilize este dispositivo perto da água e limpe-o somente com um pano seco.

Avviso! Non utilizzare questo dispositivo vicino all'acqua e pulirlo soltanto con un panno asciutto.

Warning!

Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

Avertissement ! Ne bloquez aucune ouverture de ventilation. Suivez les instructions du fabricant lors de l'installation.

Warnung! Die Lüftungsöffnungen dürfen nicht blockiert werden. Nur gemäß den Anweisungen des Herstellers installieren.

¡Advertencia! No bloquee ninguna de las aberturas de la ventilación. Instale de acuerdo con las instrucciones del fabricante.

Aviso! Não obstrua nenhuma das aberturas de ventilação. Instale de acordo com as instruções do fabricante.

Avviso! Non ostruire le aperture di ventilazione. Installare in conformità con le istruzioni del fornitore.

Warning!

Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

Avertissement ! N'installez pas l'appareil près d'une source de chaleur telle que des radiateurs, des bouches d'air de chauffage, des fourneaux ou d'autres appareils (amplificateurs compris) qui produisent de la chaleur.

Warnung! Nicht in der Nähe von Wärmequellen wie Heizkörpern, Heizregistern, Öfen oder anderen Wärme erzeugenden Geräten (einschließlich Verstärkern) aufstellen.

¡Advertencia! No instale cerca de fuentes de calor tales como radiadores, registros de calor, estufas u otros aparatos (incluidos amplificadores) que generan calor.

Aviso! Não instale perto de nenhuma fonte de calor tal como radiadores, saídas de calor, fogões ou outros aparelhos (incluindo amplificadores) que produzam calor.

Avviso! Non installare vicino a fonti di calore come termosifoni, diffusori di aria calda, stufe o altri apparecchi (amplificatori compresi) che emettono calore.

Warning!

Refer all servicing to qualified service personnel. Servicing is required when the device has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the device, the device has been exposed to rain or moisture, does not operate normally, or has been dropped.

Avertissement ! Référez-vous au personnel de service qualifié pour tout entretien. L'entretien est exigé quand l'appareil a été endommagé de quelque manière que ce soit, par exemple lorsque le cordon d'alimentation ou la prise sont endommagés, que du liquide a été versé ou des objets sont tombés dans l'appareil, que l'appareil a été exposé à la pluie ou à l'humidité, ne fonctionne pas normalement ou est tombé.

Warnung! Das Gerät sollte nur von qualifizierten Fachkräften gewartet werden. Eine Wartung ist fällig, wenn das Gerät in irgendeiner Weise beschädigt wurde, wie bei beschädigtem Netzkabel oder Netzstecker, falls Flüssigkeiten oder Objekte in das Gerät gelangen, das Gerät Regen oder Feuchtigkeit ausgesetzt wurde, nicht ordnungsgemäß funktioniert oder fallen gelassen wurde.

¡Advertencia! Consulte al personal calificado por cuestiones de reparación. El servicio de reparación se requiere cuando el dispositivo ha recibido cualquier tipo de daño, por ejemplo cable o espigas dañadas, se ha derramado líquido o se han caído objetos dentro del dispositivo, el dispositivo ha sido expuesto a la lluvia o humedad, o no funciona de modo normal, o se ha caído.

Aviso! Remeta todos os serviços de manutenção para o pessoal de assistência qualificado. A prestação de serviços de manutenção é exigida quando o dispositivo foi danificado mediante qualquer forma, como um cabo de alimentação ou ficha que se encontra danificado/a, quando foi derramado líquido ou caíram objectos sobre o dispositivo, quando o dispositivo foi exposto à chuva ou à humidade, quando não funciona normalmente ou quando foi deixado cair.

Avviso! Fare riferimento al personale qualificato per tutti gli interventi di assistenza. L'assistenza è necessaria quando il dispositivo è stato danneggiato in qualche modo, ad esempio se il cavo di alimentazione o la spina sono danneggiati, è stato rovesciato del liquido è stato rovesciato o qualche oggetto è caduto nel dispositivo, il dispositivo è stato esposto a pioggia o umidità, non funziona correttamente o è caduto.

Caution!

This device is a Class A product. Operation of this equipment in a residential area is likely to cause harmful interference, in which case users will be required to take whatever measures may be necessary to correct the interference at their own expense.

Attention! Le périphérique est un produit de Classe A. Le fonctionnement de cet équipement dans une zone résidentielle risque de causer des interférences nuisibles, auquel cas l'utilisateur devra y remédier à ses propres frais.

Achtung! Dies ist ein Gerät der Klasse A. Bei Einsatz des Geräts in Wohngebieten kann es Störungen des Radio- und Fernsehempfangs verursachen. In diesem Fall muss der Benutzer alle notwendigen Maßnahmen ergreifen, die möglicherweise nötig sind, um die Störungen auf eigene Rechnung zu beheben.

¡Precaución! Este es un producto clase A. El uso de este equipo en áreas residenciales puede causar interferencias nocivas, en cuyo caso, se requerirá que los usuarios tomen cualquier medida necesaria para corregir la interferencia por cuenta propia.

Cuidado! Este dispositivo é um produto Classe A. Operar este equipamento em uma área residencial provavelmente causará interferência prejudicial; neste caso, espera-se que os usuários tomem as medidas necessárias para corrigir a interferência por sua própria conta.

Attenzione! Questo dispositivo è un prodotto di Classe A. Il funzionamento di questo apparecchio in aree residenziali potrebbe causare interferenze dannose, nel cui caso agli utenti verrà richiesto di adottare tutte le misure necessarie per porre rimedio alle interferenze a proprie spese.

Warning!

Disconnect the external AC power supply line cord(s) from the mains power before moving the unit.

Avertissementþ! Retirez le ou les cordons d'alimentation en CA de la source d'alimentation principale lorsque vous déplacez l'appareil.

Warnung! Trennen Sie die Wechselstrom-Versorgungskabel vom Netzstrom, bevor Sie das Gerät verschieben.

¡Advertencia! Cuando mueva la unidad desenchufe de la red eléctrica el/los cable(s) de la fuente de alimentación CA tipo brick.

Advertência! Remova os cabos CA de alimentação brick da rede elétrica ao mover a unidade.

Avvertenza! Scollegare il cavo dell'alimentatore quando si sposta l'unità.

Hazard Warning!

High Voltage. This situation or condition can cause injury due to electric shock.

Avertissement ! Tension élevée. Cette situation ou condition peut causer des blessures dues à un choc électrique.

Warnung! Hochspannung. Diese Situation oder Bedingung kann zu Verletzungen durch Stromschlag führen.

¡Advertencia! Alto voltaje . Esta situación o condición puede causar lesiones debidas a una descarga eléctrica.

Aviso! Alta Tensão . Esta situação ou condição pode causar danos devido a choques elétricos.

Avviso! Alta tensione. Questa situazione o condizione può causare lesioni a causa di scosse elettriche.

Warning!

Only use attachments and accessories specified and/or sold by the manufacturer.

Avertissement ! Utilisez seulement les attaches et accessoires spécifiés et/ou vendus par le fabricant.

Warnung! Verwenden Sie nur Zusatzgeräte und Zubehör angegeben und / oder verkauft wurde durch den Hersteller.

¡Advertencia! Utilice solamente los accesorios y conexiones especificados y/o vendidos por el fabricante.

Aviso! Utilize apenas equipamentos/acessórios especificados e/ou vendidos pelo fabricante.

Avviso! Utilizzare soltanto i collegamenti e gli accessori specificati e/o venduti dal produttore.

Warning!

Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

Avertissement ! La sécurité de la prise polarisée ou de la prise de type mise à la terre ne doit en aucun cas être empêchée de fonctionner. Une prise polarisée a deux broches, l'une étant plus large que l'autre. Une prise de type mise à la terre a deux broches et une troisième broche pour la mise à la terre. La broche large ou la troisième broche sont fournies pour votre sécurité. Si la prise fournie ne s'insère pas dans

votre prise femelle, consultez un électricien pour le remplacement de la prise femelle obsolète.

Warnung! Der Sicherheitszweck des gepolten bzw. Schukosteckers ist zu berücksichtigen. Ein gepolter Stecker verfügt über zwei Pole, von denen einer breiter als der andere ist. Ein Schukostecker verfügt neben den zwei Polen noch über einen dritten Pol zur Erdung. Der breite Pol bzw. der Erdungspol dienen der Sicherheit. Wenn der zur Verfügung gestellte Stecker nicht in Ihren Anschluss passt, konsultieren Sie einen Elektriker, um den veralteten Anschluss zu ersetzen.

¡Advertencia! No eche por tierra la finalidad del tipo de enchufe polarizado con conexión a tierra. Un enchufe polarizado tiene dos espigas, una más ancha que la otra. Un enchufe con conexión a tierra tiene dos espigas iguales y una tercera espiga que sirve para la conexión a tierra. La expiga ancha, o la tercera espiga, sirven para su seguridad. Si el enchufe suministrado no encaja en el tomacorriente, consulte con un electricista para reemplazar el tomacorriente obsoleto.

Aviso! Não anule a finalidade da segurança da ficha polarizada ou do tipo ligação terra. Uma ficha polarizada tem duas lâminas sendo uma mais larga do que a outra. Uma ficha do tipo de ligação à terra tem duas lâminas e um terceiro terminal de ligação à terra. A lâmina larga ou o terceiro terminal são fornecidos para sua segurança. Se a ficha fornecida não couber na sua tomada, consulte um electricista para a substituição da tomada obsoleta.

Avviso! Non compromettere la sicurezza della spina polarizzata o con messa a terra. Una spina polarizzata ha due spinotti, di cui uno più largo. Una spina con messa a terra ha due spinotti e un terzo polo per la messa a terra. Lo spinotto largo o il terzo polo sono forniti per motivi di sicurezza. Se la spina fornita non si inserisce nella presa di corrente, contattare un elettricista per la sostituzione della presa obsoleta.

Warning!

Since the Mains plug is used as the disconnection for the device, it must remain readily accessible and operable.

Avertissement ! Puisque la prise principale est utilisée pour débrancher l'appareil, elle doit rester aisément accessible et fonctionnelle.

Warnung! Da der Netzstecker als Trennvorrichtung dient, muss er stets zugänglich und funktionsfähig sein.

¡Advertencia! Puesto que el enchufe de la red eléctrica se utiliza como dispositivo de desconexión, debe seguir siendo fácilmente accesible y operable.

Aviso! Dado que a ficha principal é utilizada como a desconexão para o dispositivo, esta deve manter-se prontamente acessível e funcional.

Avviso! Poiché il cavo di alimentazione viene usato come dispositivo di sconnessione, deve rimane prontamente accessibile e operabile.

Warning!

Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the device.

Avertissement ! Protégez le cordon d'alimentation pour que l'on ne marche pas dessus ou qu'on le pince, en particulier au niveau des prises mâles, des réceptacles de convenance, et à l'endroit où il sort de l'appareil.

Warnung! Es muss verhindert werden, auf das Netzanschlusskabel zu treten oder dieses zu knicken, besonders an den Steckern, den Steckerbuchsen und an dem Punkt, an dem das Kabel aus dem Gerät heraustritt.

¡Advertencia! Puesto que el enchufe de la red eléctrica se utiliza como dispositivo de desconexión, debe seguir siendo fácilmente accesible y operable.

Aviso! Proteja o cabo de alimentação de ser pisado ou de ser comprimido particularmente nas fichas, em tomadas de parede de conveniência e no ponto de onde sai do dispositivo.

Avviso! Proteggere il cavo di alimentazione in modo che nessuno ci cammini sopra e che non venga schiacciato soprattutto in corrispondenza delle spine e del punto in cui esce dal dispositivo.

Warning!

Unplug this device during lightning storms or when unused for long periods of time.

Avertissement ! Débranchez cet appareil pendant les orages avec éclairsou s'il est inutilisé pendant de longues périodes.

Warnung! Das Gerät ist bei Gewitterstürmen oder wenn es über lange Zeiträume ungenutzt bleibt vom Netz zu trennen.

¡Advertencia! Desenchufe este dispositivo durante tormentas eléctricas o cuando no se lo utilice por largos periodos del tiempo.

Aviso! Desconecte este dispositivo da tomada durante trovoadas ou quando não é utilizado durante longos períodos de tempo.

Avviso! Utilizzare soltanto i collegamenti e gli accessori specificati e/o venduti dal produttore, quali il treppiedi e l'esoscheletro.

Warning!

Do not open the chassis. There are no user-serviceable parts inside. Opening the chassis will void the warranty unless performed by an AJA service center or licensed facility.

Avertissementþ! Ne pas ouvrir le châssis. Aucun élément à l'intérieur du châssis ne peut être réparé par l'utilisateur. La garantie sera annulée si le châssis est ouvert par toute autre personne qu'un technicien d'un centre de service ou d'un établissement agréé AJA.

Warnung! Öffnen Sie das Gehäuse nicht. Keine der Geräteteile können vom Benutzer gewartet werden. Durch das Öffnen des Gehäuses wird die Garantie hinfällig, es sei denn, solche Wartungsarbeiten werden in einem AJA-Service-Center oder einem lizenzierten Betrieb vorgenommen.

¡Advertencia! No abra el chasis. El interior no contiene piezas reparables por el usuario. El abrir el chasis anulará la garantía a menos que se lo haga en un centro de servicio AJA o en un local autorizado.

Advertência! Não abra o chassi. Não há internamente nenhuma peça que permita manutenção pelo usuário. Abrir o chassi anula a garantia, a menos que a abertura seja realizada por uma central de serviços da AJA ou por um local autorizado.

Avvertenza! Non aprire lo chassis. All'interno non ci sono parti riparabili dall'utente. L'apertura dello chassis invaliderà la garanzia se non viene effettuata da un centro ufficiale o autorizzato AJA.

Warning!

To meet safety regulations for leakage current, connect the FS2 dual power supplies to separate branch circuits.

Appendix E: Glossary

Reference Terms

2Kx1080 — 2Kx1080 is a 2048 x1080 digital cinema standard.

3:2 Pull Down — 3:2 pull down is a process where six frames are added to a film's original 24-frames-per-second format so that it can work within the 30 fps NTSC standard.

3D-TV — 3D-TV is HD-SDI video that uses two video streams, one for the left eye and one for the right, to give the image depth. The two video streams can be either two independent HD-SDI video feeds or two video streams multiplexed into a single HD-SDI feed.

3G-SDI — 3G is a single-link HD-SDI format at 2.970 Gbits/s for transmitting high-bandwidth video formats that require higher data rates than 1.5 Gb HD-SDI. Examples include 1080p60/50, 4:4:4 RGB or YCbCr HD, etc. There are two approved versions of the 3G-SDI format: A and B. The 3G-A format is typically used to carry a single high-bandwidth video signal, such as 1080p. The 3G-B format is used to multiplex two 1.5 Gb SDI signals together into one wire, such as dual-link 1.5 Gb SDI.

24P — A term for 24 full frames per second digital video progressively captured. It generally refers to the HD format of 1920x1080, although it is also used with 1280x720 images as well.

1080i — Refers to a picture resolution of 1920 vertical pixels by 1080 horizontal pixels. The "i" stands for interlaced scanning. Interlaced scanning is based on the principle that the screen shows every odd line at one scan of the screen and then all the even lines in a second scan.

1080p	Refers to a picture resolution of 1,920 vertical pixels by 1,080 horizontal pixels. The "p" stands for progressive scanning. This format works on the same principle as 720p; the only difference is that in this type there are more pixels and the resolution is better.
1080psf	1080psf differs from 1080p defined previously; PSF is an acronym for "Progressive Segmented Frame". Like 1080p, psf is progressive, but it differs in that the data is written as two separate "fields" (but without inter-field motion as interlaced video carries). This provides psf with the temporal motion characteristics of progressive video, but with the data transport ease of interlaced video. There should be no visual difference between the display of a progressive frame communicated as 1080p, and the same frame communicated as 1080psf.
16:9	Refers to the aspect ratio of movie screen and widescreen DTV formats used in all HDTV (High Definition TV) and some SDTV (Standard Definition TV). The ratio is 16 arbitrary units of width for every 9 arbitrary units of height.
4:3	The aspect ratio of traditional National Television Systems Committee (NTSC) TV screens. The ratio refers to four units of width for every three units of height.
720p	Refers to a picture that is 1,280 vertical pixels by 720 horizontal pixels. The "p" stands for progressive scanning. Progressive scanning offers a smoother picture as 720 horizontal lines are scanned progressively or in succession in a vertical frame repeated 30 times a second.
Anamorphic video	Refers to video images that are "squeezed" or "stretched" (depending on whether the video is being Upconverted or Downconverted) to fit a video frame. When 16:9 anamorphic video is displayed on a 4:3 screen size (Downconvert), the images will appear unnaturally tall and narrow.
Aspect ratio	A ratio of screen width to height. It may be traditional 4:3 or 16:9 widescreen.
ATSC	An acronym for Advanced Television Systems Committee, which is responsible for developing and establishing Digital-HDTV Standards. It is also the name of the DTV system used by broadcasters in the U.S.
Barn Doors	When a 4:3 image is viewed on a 16:9 screen, the viewer sees black bars on the sides of the screen, sometimes referred to as "barn doors."
Codec	A short term used for both "Compressor-decompressor" and "Coder-decoder." In terms of Final Cut Pro and most editing and graphics applications, codec generally means "Compressor-decompressor", which, whether hardware or software, converts video and audio signals to and from a compressed digital format. ("Coder-decoder" is generally a device that converts analog video and audio signals into a

digital format for transmission, and also converts digital signals back into an analog format; depending on the application, it can also have alternate meanings.)

Crossconvert Refers to format conversion from one video standard to a similar video standard, such as 720p HD to 1080i HD.

Decoder See "codec." A device or program that translates encoded data into its original format (i.e., it decodes the data.).

Deinterlacing The process of converting an interlaced-scan video signal (where each frame is split into two sequential fields) to a progressive-scan signal (where each frame remains whole). Advanced de-interlacers include a feature called 3-2 pulldown processing. Sometimes de-interlacing is referred to as "line-doubling."

Downconvert Refers to format conversion from a higher resolution input standard to a lower one. For example, converting a 1080 input to a 525 display (HD to SD).

Dual-link An HD-SDI video format that achieves a 2.970 Gbit/s data rate by splitting a video signal across two separate 1.5 Gb wires (links).

DTV (Digital Television) DTV stands for Digital Television. It refers to all digital television formats and standards established by the Advanced Television Systems Committee (ATSC). Two basic DTV standards are HDTV (high-definition television) and SDTV (standard-definition television)

DVI A consumer digital video interface for computers.

Embedding Refers to inserting a digital signal into the blank parts of another digital signal, such as embedding digital audio into the horizontal blanking interval of a digital video signal.

Frame rate The rate at which frames are displayed per second. Frame rates are used in synchronizing audio and pictures for video and film. In motion pictures and television, the frame rates are standardized by SMPTE (Society of Motion Picture and Television Editors). SMPTE frame rates of 24, 25 and 30 frames per second are very common, with a great number of others also used. Frame rates have different applications and uses in different workflows. For motion pictures 24 frames per second is common, while in standard definition television 30 frames per second is common in the US (NTSC). Higher frame rates produce smoother motion but also create larger file storage requirements.

Frame Sync A circuit that automatically adjusts video signal timing to match the timing of a reference signal, such as the signal from a genlock circuit.

Genlock	A circuit that phase-locks to a reference video input and produces timing signals used by other circuits, such as a frame sync, to lock video to the reference.
HDTV (High-Definition Television)	High Definition Television refers to the highest-resolution formats of the DTV formats. Offering twice the vertical and horizontal picture resolution of standard definition, an HD picture is much sharper. HDTV has a widescreen aspect ratio of 16:9. HD formats 1080i and 720p both offer reduced motion artifacts like ghosting and dot crawl.
HD-SDI	Refers to a high definition signal provided on a serial digital connection.
High Definition	A video format consisting of either 720 active lines of progressive video or 1080 active lines, using either progressive or interlaced scanning.
HDMI	High Definition Multimedia Interface is a standard consumer-level single-cable digital video and audio interface. HDMI handles uncompressed HD or SD video in many video and computer formats and eight channels of digital audio. Several different connectors are commonly used for HDMI, including the 19-pin semi-trapezoidal-shaped Type A connector used on the FS2.
Interlaced Scanning	A scanning method based on the visible screen showing every odd line at one scan of the screen and the even lines in a second scan.
Keyer	A circuit that inserts one video signal into another. For example, a caption might be inserted into background video.
Letterbox	Letterbox refers to the image of a wide-screen picture on a standard 4:3 aspect ratio screen. Usually black bars are shown above and below the picture to fill the unused space. Letter-boxing maintains the original aspect ratio of the source (often a film source of 16:9 aspect ratio or wider).
Luminance	The brightness or black-and-white component of a color video signal. Luminance determines the level of picture detail.
Processing Amplifier (Proc Amp)	A circuit that cleans up a video signal by correcting the signal gain, black level, hue, and saturation to desired specifications.
Progressive Scanning	Progressive scanning provides a picture made up of 720 or 1080 horizontal lines scanned progressively in succession, within a vertical frame. The frame repeats 30 times a second.

Resolution Resolution usually refers to the density of lines, and dots per line, that represent an image. It is measured by the number of pixels displayed. A higher number of lines and dots provides sharper and more detailed picture content. Analog television pictures have over 200,000 color pixels while HDTV—at 1080 vertical pixels by 1920 horizontal pixels—offer greater than 2 million pixels per picture.

Sampling A digital process by which analog information is measured in intervals to convert analog to digital.

SDTV (Standard-Definition Television) Standard Definition Television pictures are higher quality than NTSC, however, they do not reach the quality and resolution of HD. SDTV is based on 480 lines of vertical resolution, available with both interlaced and progressively scanned formats.

SD-SDI Refers to a standard definition signal provided on a serial digital connection.

Sidebars See "Barn Doors."

Tri-level Sync A form of analog sync reference used in HD video. Tri-level sync contains both a negative-going and a positive-going pulse centered around the blanking level (ground).

Upconverting Process by which a standard definition picture is changed to a simulated high-definition picture.

Widescreen Widescreen TV is a picture with a 16:9 aspect ratio. 16:9 is the aspect ratio of movie screen and widescreen DTV formats used in all HDTV (High Definition TV) and some SDTV (Standard Definition TV); it stands for 16 units of width for every 9 units of height.

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